PACIFIC PULP & PAPER INDUSTRY

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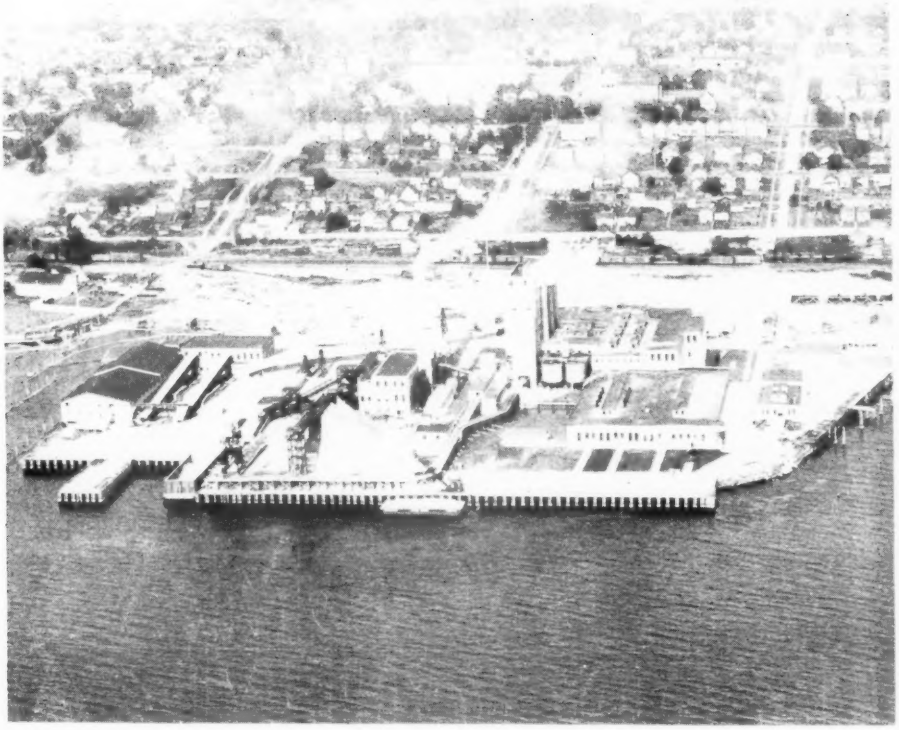

The Puget Sound Pulp & Timber Company at Everett

SEPTEMBER + 1930

Liquid CHLORINE

Highest Value
Uniformity
Quality

The TACOMA ELECTROCHEMICAL COMPANY is ideally located to render efficient service to the growing needs of the pulp and paper industry.

Modern shipping facilities under the direction of an experienced organization assures prompt and efficient deliveries.

We are in a position to supply promptly Liquid Chlorine and Caustic Soda from our Tacoma plant and other industrial chemicals manufactured by the Pennsylvania Salt Manufacturing Company.

Acids
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Aluminas
Caustic Soda
Liquid Chlorine
Bleaching Powder
Greenland Kryolith
Sodium Hypochlorite
Ammonium Persulphate

TACOMA ELECTROCHEMICAL CO.

TACOMA WASHINGTON.

A SUBSIDIARY OF THE PENNSYLVANIA SALT MANUFACTURING CO.

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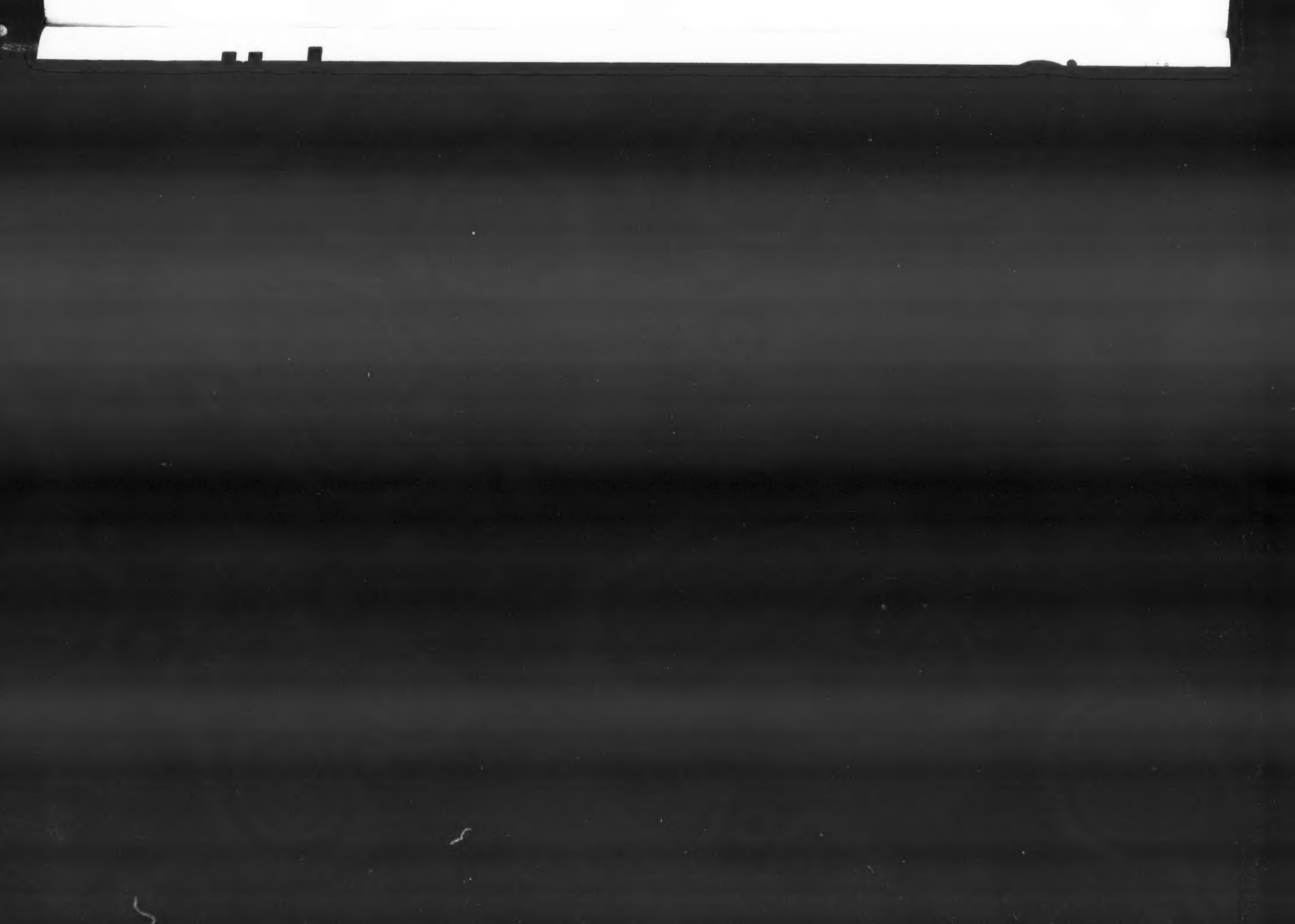

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NEW BELOIT

HIGH-SPEED

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SUPER SHAKE

The result of seven years of research. *Makes better papers at higher speeds.* It will pay you to get the facts on this newest modern development in papermaking. A letter brings you complete details.

BELOIT IRON WORKS, BELOIT, WIS., U. S. A.

The BELOIT

BELOIT IRON WORKS PAPER MACH'Y BELOIT, WIS.

"THE *BELOIT* WAY IS THE *MODERN* WAY"

New Developments in Paper Stock Pumping Are of Interest to Paper Mills —

In this connection the improved Allis-Chalmers Paper Stock Pump merits your investigation

You can obtain from us on request, a data sheet for outlining your paper stock pumping requirement for our recommendations.

Write for Leaflet No. 2105

ALLIS-CHALMERS

MILWAUKEE, WIS. U. S. A.

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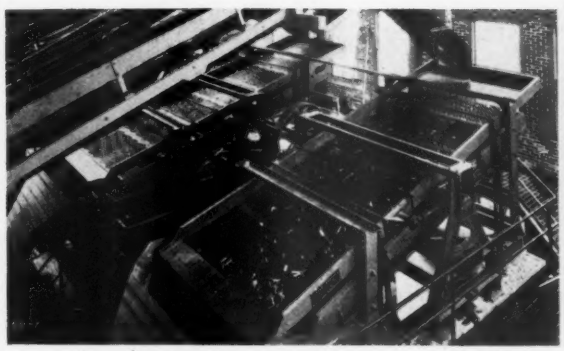
Exterior view of the log haul and sawmill of the PUGET SOUND PULP & TIMBER COMPANY, Everett, Washington. Practically all the machinery in this mill built by Hesse-Ersted Iron Works.



Showing two of the HESSE-ERSTED Chip Screens in the new 175-ton bleached sulphite pulp mill of the PUGET SOUND PULP & TIMBER COMPANY, Everett, Washington.

Showing four of the eight HESSE-ERSTED CONCAVE HEAD BARKERS used to bark slabs in the new 175-ton sulphite pulp mill of the PUGET SOUND PULP & TIMBER COMPANY, Everett, Washington.

The various plants of the Puget Sound Pulp & Timber Company are users of the following Hesse-Ersted products:

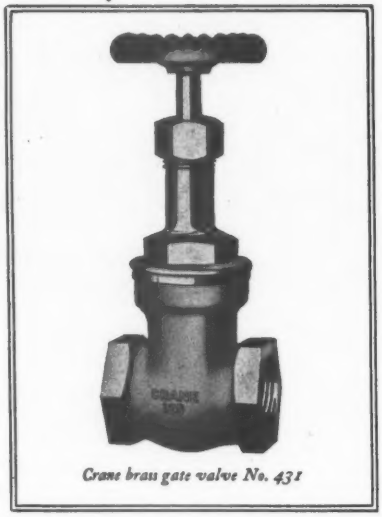
H-E Speed Reducers
H-E Agitators
H-E Stock Valves
H-E Chip Screens
H-E Conveyors
H-E Barkers
H-E Chippers
H-E Balers
H-E Saw Mill Machinery and others

HESSE-ERSTED IRON WORKS

Portland, Oregon, U.S.A.

1855 • SEVENTY-FIFTH ANNIVERSARY • 1930

Users' demands built this valve



Crane brass gate valve No. 431

The requirements of users designed this brass gate valve. The quickly worn seating surfaces, the sticking disc . . . two common causes of complaint have been banished by painstaking machining, and accurately fitted guides and ribs.

Leaks have been made practically impossible by the grinding in of the solid wedge disc and by its true fit to the tapered seats.

Equalling the care of this valve's construction, is the care with which materials for it were chosen, and the accessibility of their assembly.

The bonnet is forged; the packing nut is of brass; and the handwheel is of malleable iron. The disc stem connection is of the slip-on type, while the stuffing box can be repacked when the valve is under pressure.

So, in every detail, this brass gate valve No. 431 is planned to give unsurpassed service on lines carrying not more than 125 pounds steam working pressures.

Valves CRANE *Fittings*

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVENUE, CHICAGO
NEW YORK OFFICES: 23 W. 44TH STREET

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When writing to CRANE CO., *please mention* PACIFIC PULP AND PAPER INDUSTRY.

Installation of four Biggs Standard Cylinder Rotary Bleaching Boilers on structural steel foundations at the Pequannock Valley Paper Co., Butler, N. J.

Biggs Welded Rotaries Have Established a New Standard of Continuous Operation in the Modern Paper Industry

There are good reasons for the increasing trend among paper manufacturers towards the all-welded rotaries and similar equipment built by Biggs. Biggs Welded Rotaries have banished upkeep worries. They have solved the problems formerly involved in special processes. They have given the paper industry the most efficient, continuous, profitable operation it has ever known.

This new standard of performance grows out of the perfection attained by the Biggs welding procedure. Years of test and development have proved that "the Biggs weld is stronger than the plate itself". As a double testimony to this fact, Biggs Welded High Pressure Vessels (1) have been approved by the leading insurance companies regardless of size or working pressure, and (2) are accepted for installation where the A.S.M.E. code has been adopted for unfired pressure vessels.

More than 40 years' service in your field has brought us an intimate knowledge of your conditions and requirements. Whether your set-up calls for rotary, stationary, or tumbling equipment, welded or riveted, Biggs' fabricating and erecting facilities are at your command.

May we send you "Uunsual Steel Plate Construction", a pictorial folder?

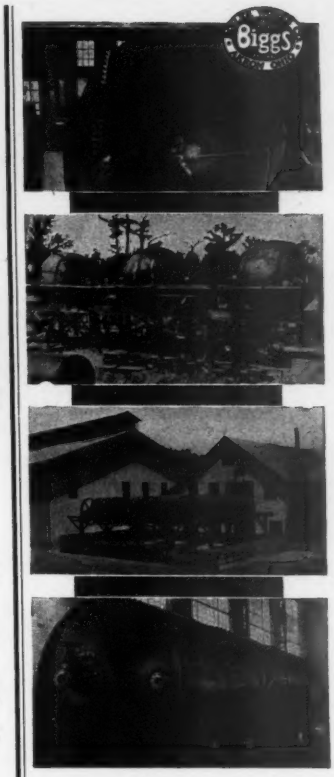
Biggs Builds—

Globe Rotary Digesters, Welded or Riveted
Tumbling Digesters, Welded or Riveted
Cylinder Rotary Bleaching Boilers
Stationary Vertical Digesters, Welded or Riveted
Pipe Lines, Welded or Riveted
Penstocks; General Welded or Riveted Steel Plate Construction

The Biggs Boiler Works Company

AKRON, OHIO — New York, Detroit, Chicago

BIGGS **ROTARIES** *for years of dependable cooking and bleaching...*



1. *Biggs Welded Rotary Digester, 14 ft. diameter.* 2. *Biggs 14 ft. Riveted Rotary Digester.* 3. *Biggs Standard Cylinder Rotary Bleaching Boilers on structural steel foundations.* 4. *Tumbling Digester.*

Among Biggs Installations Are:

Akron Paper Co., Akron
American Straw Board Co. (10 plants), Akron
Antioch Paper Co., Antioch, Calif.
Australian Paper Mills, Sydney, Australia
Ball Bros. Co., Noblesville, Ind.
Beckett Paper Co., Hamilton, Ohio
Beloit Box Board Co., Beloit, Wis.
California Paper & Board Mill Co., Antioch, Calif.
J. G. Cherry Co., Tama, Iowa
Cleveland-Akron Bag Co., Cleveland
Celotex Company, New Orleans
Consolidated Water Power & Paper Co., Appleton, Wis.
Diamond State Fibre Co., Bridgeport, Pa.
Empire Paper Co., Vincennes, Ind.
Fuji Paper Co., Tokio, Japan
Fir Tex Insulating Board Co., St. Helens, Ore.
Fibre Board Products, Inc., Stockton
Fox Paper Co., Lockland, Ohio
Herman Garbe, Shanghai, China
Hinde & Dauch Paper Co., Sandusky, Ohio; also Fort Madison, Iowa
Harriman Co., Harriman, Tenn.
John H. Heald Co., Lynchburg
International Alcohol Corp., Fullerton, La.
Kalamazoo Paper Co., Kalamazoo
Marshall Paper Co., Turner Falls, Mass.
Marshall Bros. Inc., Yorklyn, Del.
Montreal Paper Co., Sorel, Quebec
Maiswood Prod. Co., Des Moines
North Star Mfg. Co., Coffeyville, Ken.
Roanoke Fibre Board Co., Roanoke Rapids, N. C.
River Raisin Paper Co., Monroe, Mich.
Standard Paper Mfg. Co., Richmond
Sylva Paper Board Co., Sylva, N. C.
Southern Extract Co., Knoxville, Tenn.
Peter J. Schweitzer, Elizabeth, N. J.
Port Huron Sulphite & Paper Co., Port Huron, Mich.
United Paper Board Co., New York
Weis Paper Mill Co., Quincy, Ill.

"Competition is the life of trade" only when you're speaking of the other fellow. Every business would like to have a monopoly of its line. Fortunately none has, and the paper machine business is no exception. But the competition we invite and enjoy begins

"when the stock is on the wire"

Pusey and Jones

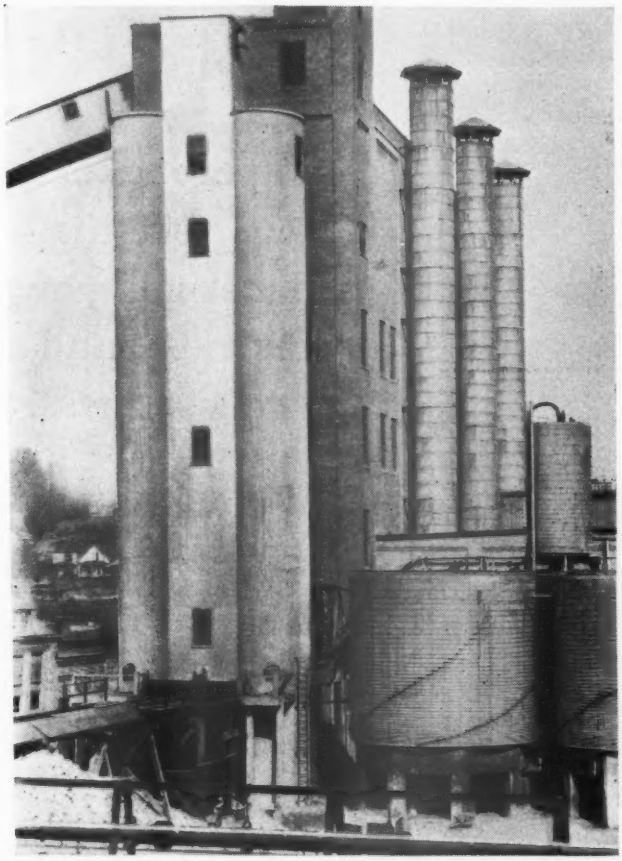
THE SIGN OF TRADE MARK SUPERIOR QUALITY

THE PUSEY AND JONES CORPORATION, WILMINGTON, DELAWARE, U. S. A., Builders of PAPER MAKING MACHINERY; for NEWS : BOOK : KRAFT : BOARD : : Working For, and in Technical Co-operation With, the Forward-Thinking Minds of the Industry : Since 1848 : The MARK, shown here, will be found on Every Casting, and on every Other Part of major Importance, in every Machine produced by This Company : : It is the Mark of Our Own Technical Standards : : A mark of Superior Quality.

The JENSSEN Two Tower Acid System

at the

Puget Sound Pulp & Timber Company's New Sulphite Mill



The above photograph shows the Jenssen Acid System at the new 175-Ton Bleached Sulphite Pulp Mill of the Puget Sound Pulp & Timber Co.

130 Jenssen Two Tower Acid Systems ... Now in Operation or Building

G. D. JENSSEN CO.

200 Fifth Avenue, New York City **1017 White Building, Seattle**

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on BOND and WRITING PAPERS

NATIONAL ALIZARINE SAPPHIRE BNP

Paper makers advantageously use this dye to produce blues of good light fastness and minimum two-sidedness.

We will gladly cooperate with you to develop a formula for the desired shade or to render any possible service.

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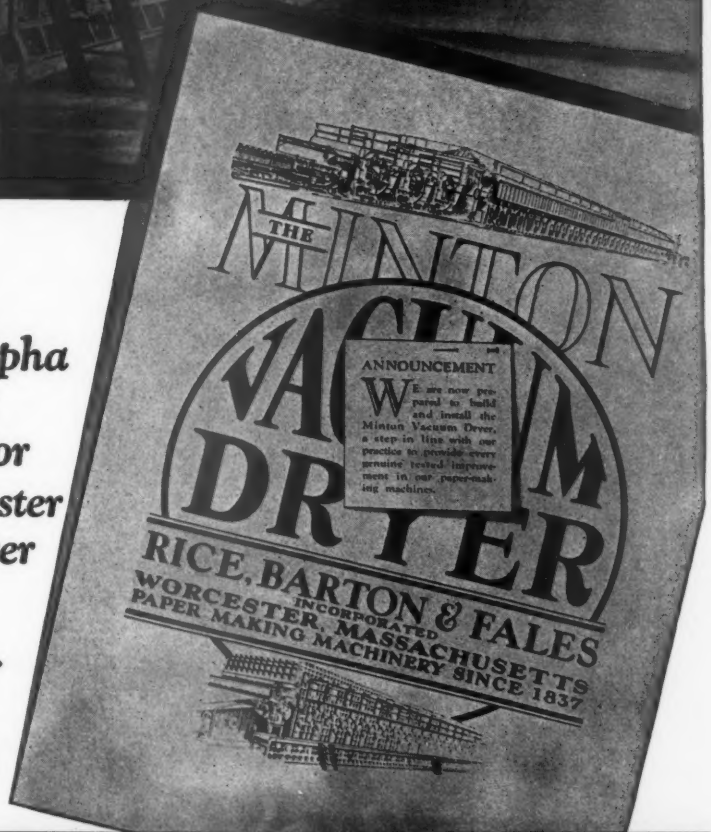
Pulp that is { *Cleaner* / *Stronger*

Pulp that has { *Higher Alpha Content* / *Better Color*

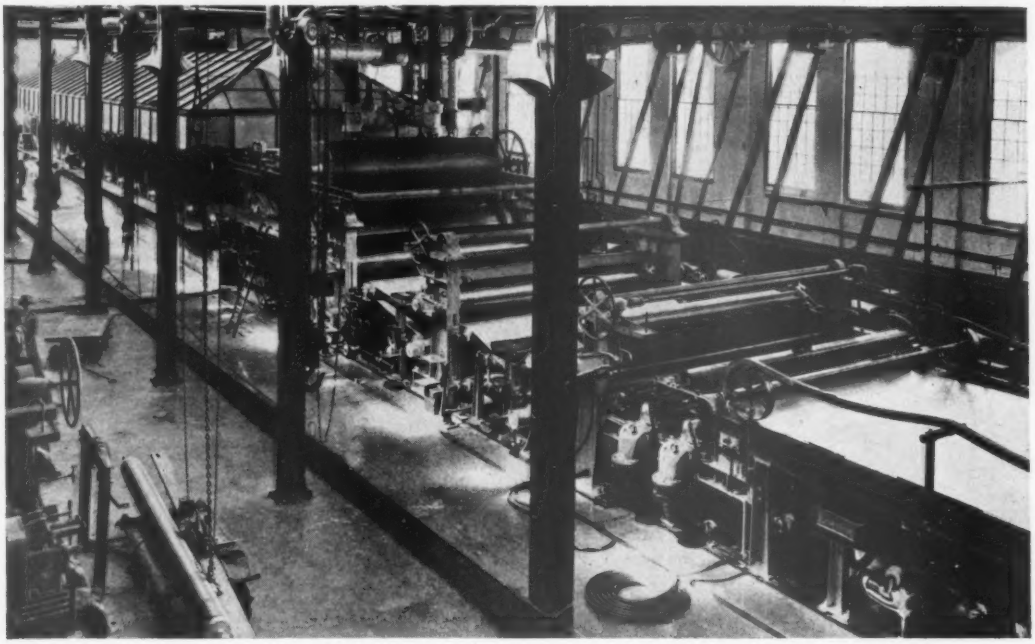
Pulp that does { *Beat up Faster* / *Make Better Paper*

Let us tell you about it.

175-ton capacity Minton Dryer which we built and installed for the Olympic Forest Products Co. at Port Angeles, Wash. This machine marks a new epoch in the manufacture of sulphite pulp.



RICE, BARTON & FALES
Incorporated
WORCESTER, MASSACHUSETTS
Paper Making Machinery Since 1837



K. M.W. Pulp Drying Machines

Are now making Bleached Sulphite Pulp in the New Mill of the Puget Sound Pulp & Timber Company at Everett, Washington

These machines are of new and superior design for the economical production of high quality bleached sulphite pulp. Each machine is equipped with K.M.W. Patented Rotary Suction Boxes, special high pressure felt presses, and Sylwan's Positive Condensed Water System.

Other K.M.W. machinery selected for this new mill includes two 110-inch Round Wood Chippers which will handle wood up to 22 inches square, two 84-inch Slab Chippers with adjustable feed for producing uniform high quality chips, and four Separators for breaking up fibre bundles prior to screening.

In addition Paper Machinery Limited have also supplied all the Drainer Tiles for the blow pits, securing a more efficient and quicker washing of the pulp.

PAPER MACHINERY LIMITED

Head Office: 413 Drummond Building, MONTREAL. Tel. Marq. 6271-6272.
Managing Director: G. L. M. HELLSTROM
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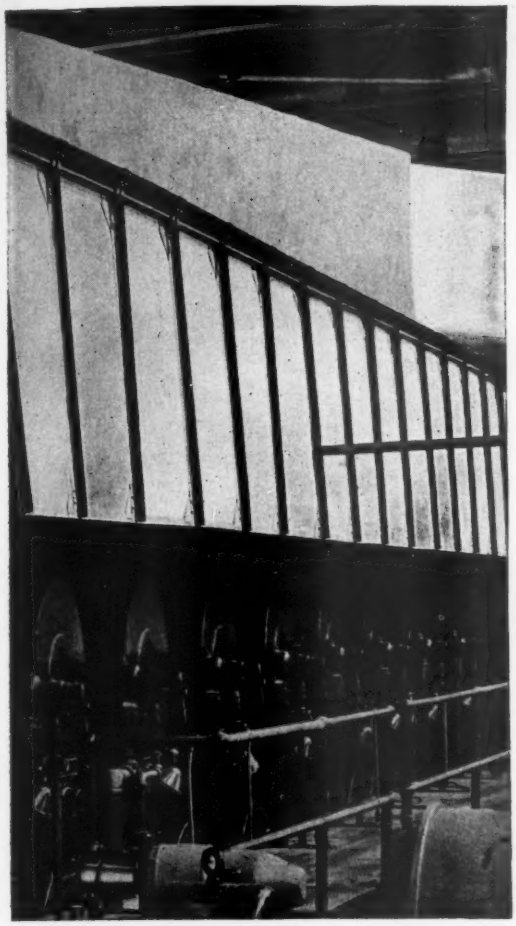
A complete line of Equipment for use in the manufacture of:
PAPER - PULP - CARDBOARD

Embracing the latest Scandinavian improvements made by works in
CANADA, U.S.A., NORWAY and SWEDEN



It's a pleasure to work in a back aisle like this

Trim and business-like as the deck of a cruiser is the back aisle of a Bagley & Sewall dryer section. No clutter, no cumbersome gears, no hazards,—and the easiest possible accessibility in emergencies.

And the entire assembly carries through the same note of modern efficiency. Dryer gears are remarkably compact, precisely cut and matched, encased in trim covers that keep broke out of the teeth.

Dryer rolls are finished to micrometer exactness, trued to perfect running balance and completely finished, inside as well as out. Timken bearings cut down power consumption, torque and drag. Bagley & Sewall spiral bevel gear drives keep the ensemble humming merrily, under time and temper saving control.

Machine men snap into their jobs with spirit on machines that look and perform like these Bagley & Sewall units. And the paper that rolls up on the reels brings pleasure and profit into the front office as well.

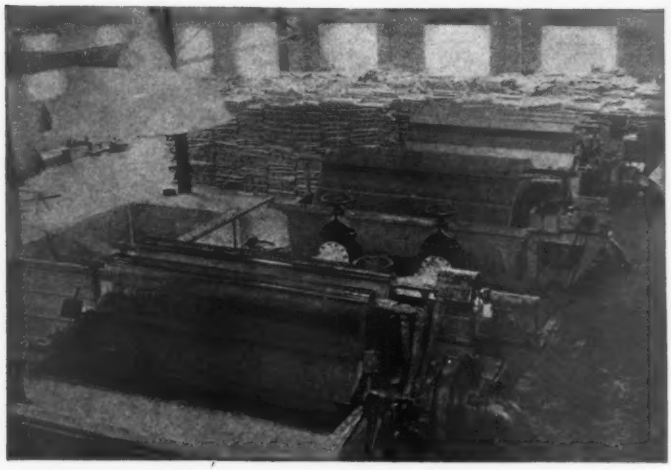
We'd like to tell you the whole story —write us

The Bagley & Sewall Co.

Watertown, N. Y.

41

Who Said Oliver United Filters Are Shy on Capacity?



HOW about 47 tons of groundwood fed at 0.45% consistency—all new stock—every twenty-four hours from 8 x14 (350 sq. ft.) Oliver Decker?

Or take another plant, quite distant, where a similar unit fed 0.47% stock is delivering 42.5 tons, of which thirteen tons are broke and white water solids. How about that?

Or how about an 8 x14 Oliver Sulphite Decker that is handling 0.325 B. D. Stock at the rate of 5000 G.P.M.? Better than 106 tons are deckered every 24 hours. Less than 0.08 lbs. per 1000 gallons loss in filtrate.

Who said Oliver United Deckers are shy on capacity? Who said they are not the economical units to use for deckering any kind of stock?

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SINCE 1904

HOOKER LIQUID CHLORINE OF RECOGNIZED QUALITY HAS BEEN SERVING INDUSTRY FOR OVER 20 YEARS. CHLORINE USERS HAVE CONFIDENCE IN HOOKER, AS EVIDENCED BY THE FACT THAT A GREAT PERCENTAGE OF THEIR PRESENT CUSTOMERS HAVE BEEN USING HOOKER LIQUID CHLORINE CONSISTENTLY FOR 10 YEARS AND MORE — IN FACT, EVER SINCE THEY BEGAN TO USE LIQUID CHLORINE.

LIKEWISE, CAUSTIC SODA AND OTHER HOOKER PRODUCTS ARE SERVING USERS OF CHEMICALS WITH THE SAME DEGREE OF RELIABILITY. HOOKER MANUFACTURING AND RESEARCH FACILITIES ARE CONSTANTLY FUNCTIONING TO IMPROVE YOUR OWN PRODUCTION OPERATIONS.

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BENZYL ALCOHOL
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When writing to HOOKER ELECTROCHEMICAL CO., *please mention* PACIFIC PULP AND PAPER INDUSTRY 4791

Pioneer Conveyor and Rubber Transmission Belting

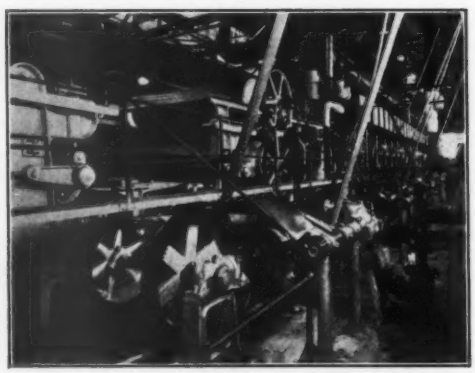
was selected by the

Puget Sound Pulp and Timber Company

because of its proven dependability

Pioneer Chip and Hogged Fuel Conveyor Belts

Top of Digester Storage showing method of discharging chips from Pioneer Conveyor Belt



Pulp Drying Machines driven by Pioneer Rubber Transmission Belting

The exacting requirements of pulp and paper manufacture require steady transmission of power and a dependable flow of supplies from the conveying equipment.

Pioneer belts can always be depended upon—*Ask the men who operate them.*

Pioneer Rubber Mills is constantly building Conveyor belts for special purposes. Long experience has developed a store of information regarding conveyor belts and the requirements necessary to meet the climatic and other conditions under which the particular conveyor belt is to operate. .

Port of Tacoma erected a large grain elevator and installed 22 Pioneer made Conveyor and Elevator belts. The combined length of these belts is 8941 feet, weighing 27,558 lbs.

The Portland Grain Terminal, now under construction, has specified Pioneer made Conveyor belts.

The same foresight should induce you to specify Pioneer Belts for your installation.

Our experience and manufacturing facilities are at your service.

PIONEER RUBBER MILLS

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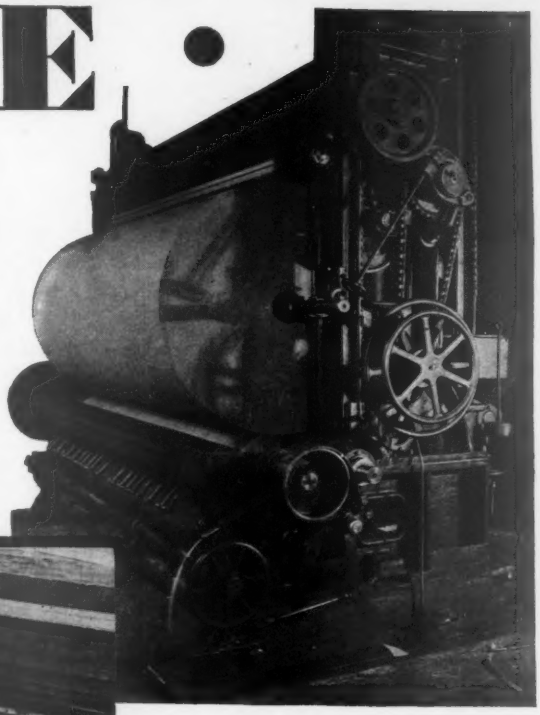
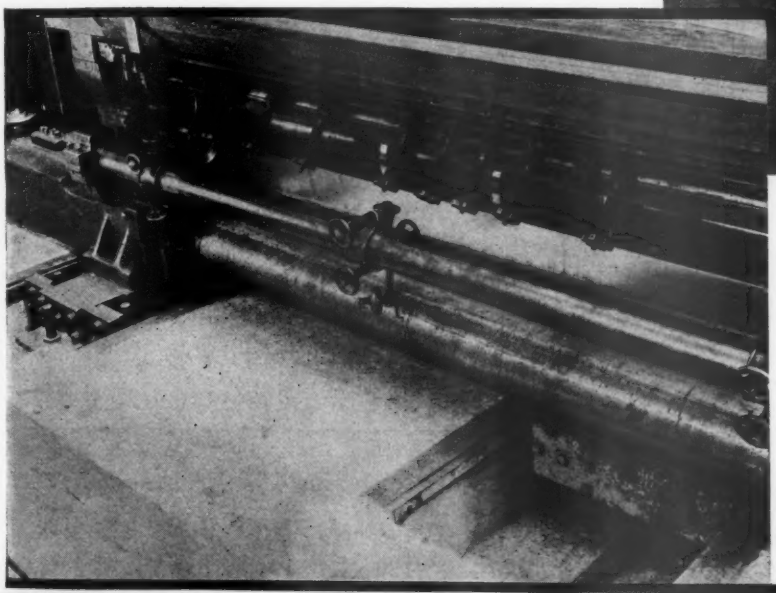
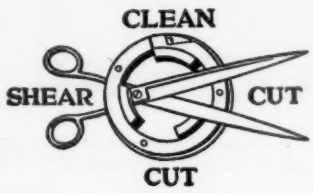
UNIQUE

This Langston Slitter is the only installation of its kind. First—it is used as a winder at the end of the board machine. Then, while sheets are being made, the Langston is rolled forward





on a special track to the position shown below. Here it becomes a rewinder and in both cases every roll is tightly wound, square-edged and free from dust.

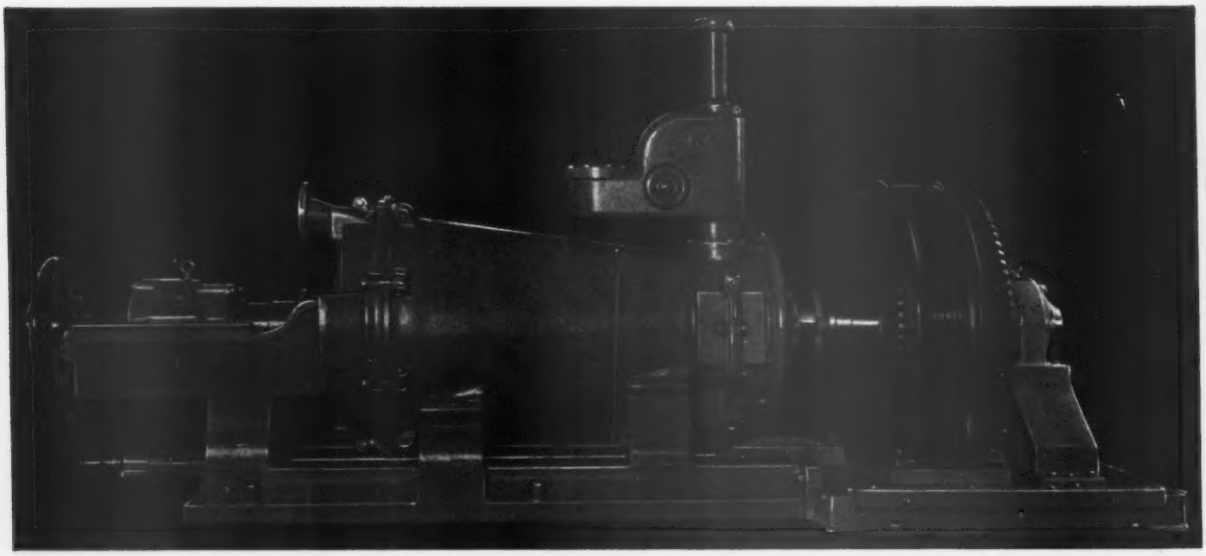


Samuel M. Langston Co. ◆ Camden, N. J.

THE CLOSE-COUPLED JORDAN HAS DEFINITE ADVANTAGES

Mounting the motor direct on the shaft has given the Appleton Close-Coupled Jordan definite advantages that are unique with this modern Jordan. It has reduced the over-all length twenty-five per cent, making this Jordan more adaptable to install and allowing four or five extra feet in which to pull the plug. It has provided a more efficient and a more profitable power application, at the same time effecting an important reduction in installation costs. The elimination of the flexible coupling has removed a source of trouble and reduced efficiency. Full advantage has been taken of the precision of anti-friction bearings to promote uniform stock refinement, accurately controlled, and for steady operation requiring little attention. These are important factors that contribute directly to the superior operating performance of the Appleton Close-Coupled Jordan

▪ THE APPLETON CLOSE-COUPLED JORDAN ENGINE



THE APPLETON MACHINE COMPANY ▪ APPLETON, WISCONSIN

Pacific Coast Representative
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Northwestern Bank Building, Portland, Oregon

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FOR BETTER PERFORMANCE

In comparing values, performance should be the determining factor. It is the only true test of worth—gauged not by first cost, but by ultimate cost over a useful life. It is the standard by which true economy must be measured.

In every field of engineering and industry, over a period of twenty years, NORMA-HOFFMANN Precision Bearings have made a distinguished record for dependable stand-up-ability. For greater economy, longer sustained, they stand pre-eminent.

There is a PRECISION Bearing for every load, speed and duty. Let our engineers help you select the type best adapted to your special conditions. And write for the Catalogs.

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PHOENIX, ARIZ.: Ahlberg Bearing Co. of California, Inc.

Western Gears in New Everett Pulp Mill

—for Conveyors, Agitators

Officials of the Puget Sound Pulp & Timber Co. have spared no effort in making their new mill at Everett a model for its size and type. It marks another step toward a position of leadership which the Pacific Coast is destined to assume in paper manufacture. WESTERN reduction gear drives, designed and built in the heart of this fast-growing industry, have been selected for many important slow speed processes throughout the plant. Units of the parallel shaft (Herringbone) type and right angle drives of both vertical and horizontal design are included in this equipment.

Exterior and interior views of the long chip conveyor are shown with a closeup of one WESTERN right angle unit which drives the longer belt. Full details will be gladly given on request.

"Get Your Gears from Gear Specialists"

Western Gear Works
SEATTLE, WASH.
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When writing WESTERN GEAR WORKS, *please mention* PACIFIC PULP & PAPER INDUSTRY

The New Williams Sheet Dryer

Dries Hand Sheets Same as Paper on Big Paper Machine

FEATURES—

1. ***Electric Heat, Thermostat Control.***
2. ***Sheet clamped under dryer canvas.***
3. ***Drys sheet flat in 4 - 5 minutes.***
4. ***Heavy polished copper top.***
5. ***Large drying surface, 20x20 inches. Four 8x8-inch sheets may be dried at a time.***

WILLIAMS APPARATUS COMPANY

WATERTOWN, N. Y.

When writing to WILLIAMS APPARATUS CO. *please mention* PACIFIC PULP AND PAPER INDUSTRY

Marcy Rod Mills improve stock and lower production costs

IN THE RECENT ENLARGEMENT of a large Kraft plant two more Marcy Rod Mills have been added. The additional equipment was installed because of the uniformly satisfactory results obtained from the first Marcy Mill.

The installation now consists of three 7′ x 16′ Marcy Rod Mills especially adapted for beating Kraft pulp.

These three units are now beating 150 tons of Kraft pulp per day, raising the average strength test from 60 to 95—equivalent to three hours average beater treatment.

The bursting strength of the paper has been raised 5% and the tearing strength raised 10%. A cleaner sheet has also resulted on account of the elimination of shives and fibre bundles because of the rod mill action.

The three Marcy Rod Mills require 576 H.P. to accomplish this result. To attain the same result with the old method of treatment would require 20 one ton beaters with a power consumption of 1500 H.P.

When you consider the saving in power and the absolute control made possible by the Marcy Rod Mill you cannot afford to be without this equipment.

Marcy Rod Mills will improve your stock and reduce your manufacturing costs by a saving in power. May we send one of our engineers to your plant to prove the desirable application of Marcy Rod Mills to your beating problems?

The MINE and SMELTER SUPPLY COMPANY

MARCY MILL DIVISION

Licensee under the Marcy Rod Mill Patents

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1422-17th Street

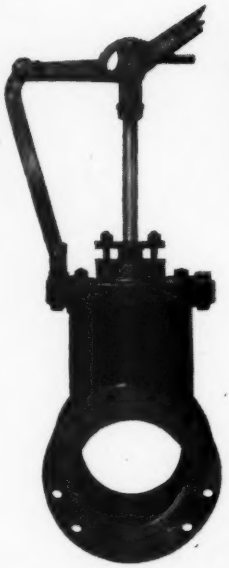
NEW YORK CITY
225 Broadway

Manufactured in Canada by
WILLIAM HAMILTON, LIMITED.
PETERBOROUGH, ONTARIO

MASSCO

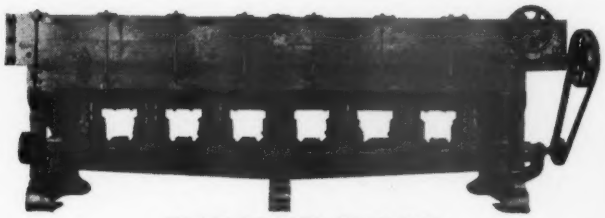
a SERVICE —that is profitable to You

as it embraces QUICK DELIVERY, PERSONAL CONTACT and LOWER FREIGHT COSTS. Take advantage of it by having your Pulp and Paper Mill Machinery built on the Pacific Coast by SMITH and VALLEY.....



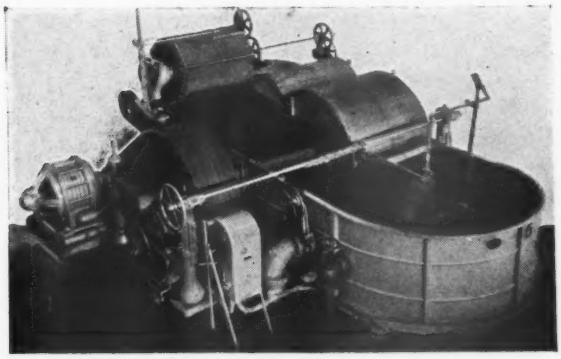
REED STOCK VALVE

Single Acting
Plunger Type
Non-Clogging
Will not Stick

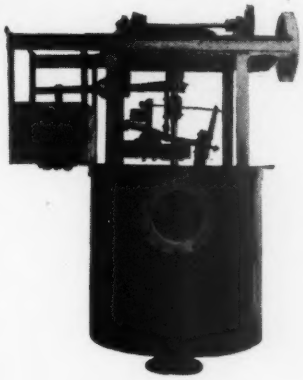


FLAT PLATE SCREENS

Noiseless—Efficient—Built for continuous and economic operation



Smith and Valley Hi Speed Beater—Built for any capacity required. Wood, Iron, Concrete or Metal lined tubs



WARNER EQUALIZER

Designed to control and Regulate all Stock Consistency

SMITH and VALLEY SERVICE is Immediately Available on the Following Equipment—

Voith High Pressure Stock Inlet
Plug Valves
Niagara Beaters
Valley Laboratory Equipment
Wet Machines
Deckers
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Quick Opening Beater Dump Valves
Pulp Grinders
Jordan Engines
Paper Mill Rolls—all descriptions
Cylinder Machines
Cylinder Moulds—all kinds
Complete Wood Room Equipment
Special Pulp and Paper Equipment

Smith and Valley Iron Works Co.

Builders of Pulp and Paper Mill Machinery

PORTLAND, OREGON

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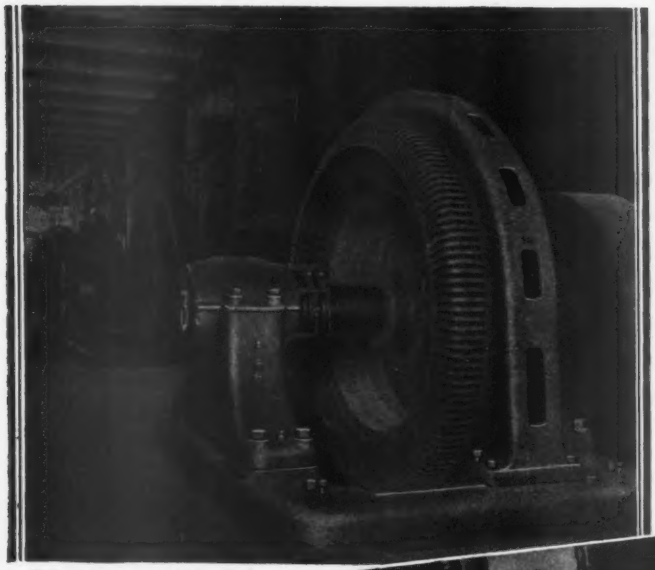
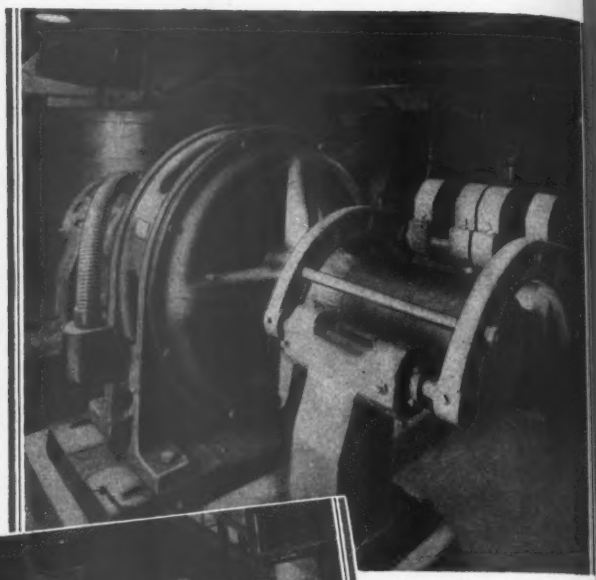
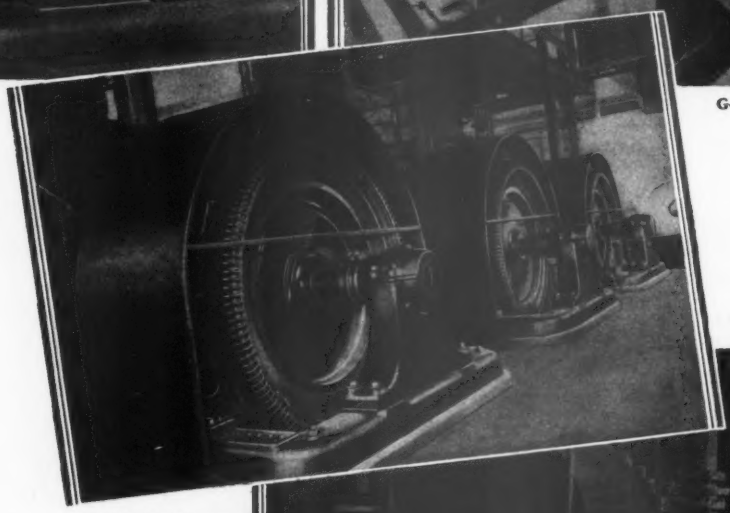
G-E SYNCHRONOUS MOTORS



Five of 15 G-E 2600-hp., synchronous motors driving thirty magazine grinders



G-E 150-hp. synchronous motor driving a beater



Three G-E 1250-hp. synchronous motors driving magazine pulp grinders

JOIN US IN THE GENERAL ELECTRIC PROGRAM, BROADCAST EVERY SATURDAY EVENING ON A NATION-WIDE N. B. C. NETWORK.

Three G-E 100-hp. synchronous motors driving vacuum pumps

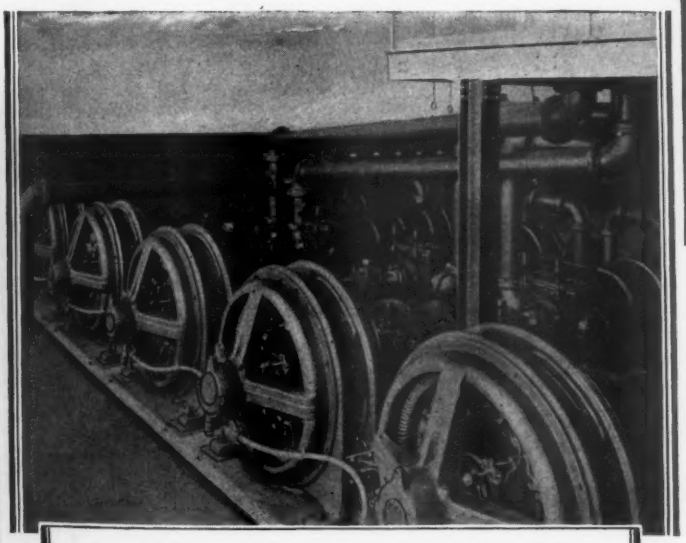
GENERAL

GENERAL ELECTRIC COMPANY, SCHENECTADY, N. Y.

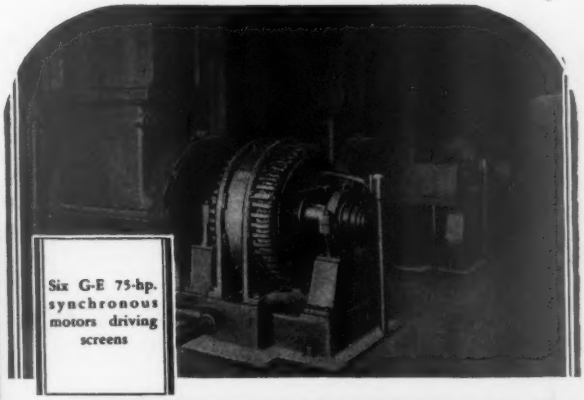
Designed and built with experience Applied with confidence

TO THE paper industry, General Electric offers a valuable store of practical experience gained through years of successful design and manufacture of synchronous motors and their application to unusual as well as ordinary drives. G-E engineers are in close touch with a wide field of synchronous-motor applications; G-E synchronous motors are available from the smallest industrial drive to the electrical giants that operate magazine grinders.

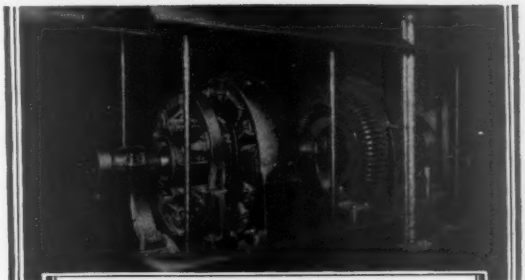
There is a G-E office near you, and there you will find capable engineers, ready and willing to help.



Five G-E 150-hp. synchronous motors direct-connected to Jordan engines



Six G-E 75-hp. synchronous motors driving screens



G-E 500-kw. synchronous motor-generator set used for stand-by service in a paper mill

107-64

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SALES AND ENGINEERING SERVICE IN PRINCIPAL CITIES

PAPER BAG MACHINERY

The Last Word - - -

in highest speed machine for making five wall bag tubes for sewed valve bottoms, used in the cement and allied trades. Completely equipped with anti-friction bearings.

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The Smith & Winchester Mfg. Co.

SOUTH WINDHAM, CONN.

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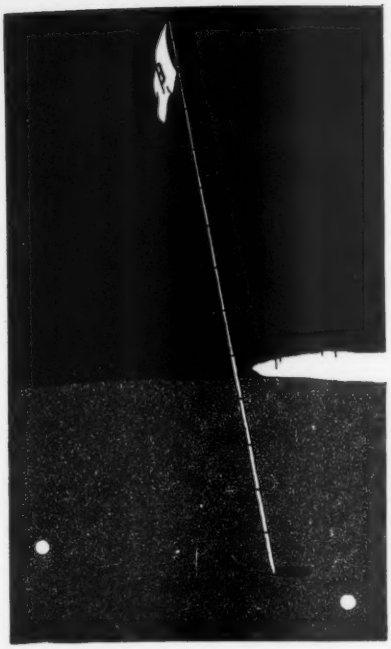


KENWOOD TANNED FELTS POSSESS THE SMOOTH SURFACE FOR SUPERIOR FINISH

Smooth — a uniformity in surface that precludes any deviation from the highest standards. Whether your product is an expensive writing, news print or pulp board, the advantage of this smoother surface is equally attractive.

In addition, the new Kenwood Tanned Felts provide factors of strength, long life and greater openness that result in marked economies — greater water removal, increased speed, lower felt cost per ton.

Kenwood pioneered the one sided board felt. This same research service developed and perfected the Kenwood Tanning processes that protect the felt from the deteriorating effects of acids.

A third fundamental improvement is found in the new method of yarn construction developed in Kenwood Felts. Increasing the openness and strength of the felt with yarn that does not increase the weight nor bulk, adds very materially to the economy and performance of the new and better felt.

F. C. HUYCK & SONS

KENWOOD MILLS, ALBANY, N. Y.

KENWOOD MILLS LTD., ARNPRIOR, ONTARIO, CANADA

KENWOOD

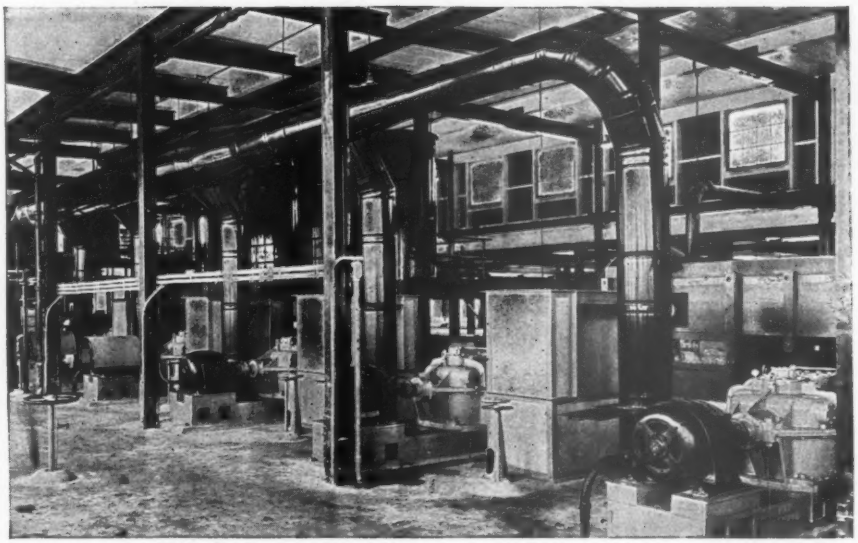
WOOL PRODUCTS

TWO PHASE BLEACHING

in the New Sulphite Pulp Mill of the

Puget Sound Pulp & Timber Co.

Everett, Washington



TWO PHASE bleaching operates in accord with natural laws inherent in the bleaching reaction but little understood until recently.

First, a PRIMARY PHASE, in which encrusting impurities which are easily broken down are removed without bleaching them.

Second, a PHASE in which the colored residues remaining in the fibres are bleached out.

The result is the HIGHEST EFFICIENCY so far obtained in commercial bleaching processes.

PULP BLEACHING CORPORATION

200 Fifth Avenue **New York City**

20 Foxboro Liquid Level Recorders for this Pulp and Paper Mill

AT the mill of the Hawley Pulp and Paper Company, shown above, there are 20 Foxboro Liquid Level Recorders.

These 20 Instruments provide continuous records of stock levels that tell how much stock is in each chest, when and how much stock is dumped from beaters, the rate at which it is being pumped to paper machines, and many other things that every mill superintendent wants to know.

This is only one of the instruments that Foxboro has perfected for the pulp and paper industry. In hundreds of mills you will find Foxboro Automatic Temperature Recorder-Controllers, Recording Thermometers, Recording Psychrometers, Recording Presure Gauges and Steam Flow Meters.

Look at the partial list of services which Foxboro instruments render the pulp and paper industry. *For all processes in your mill,* where knowledge and control of temperature, pressure, liquid level or flow is desirable, Foxboro can furnish the correct instrument.

Tell us what your problems are. We can help you.

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Detroit Cleveland Tulsa Rochester, N. Y. Atlanta
San Francisco Salt Lake City St. Paul, Minn. Dallas
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THE COMPASS OF INDUSTRY

FOXBORO Instruments and Service

Liquid Level Recorders: On beater, Jordan, machine and paper stock chests; on head boxes of paper machine; on acid tanks, size tanks, white water weirs, fuel oil tanks, bleach liquor tanks and caustic liquor storage tanks.

Temperature Recorder-Controllers: On paper machine dryer rolls, rosin size preparation, tub size preparation, waxing machines, parchmentizing machines.

Duplex Temperature Controllers: On paper machine dryer rolls.

Recording Thermometers: On SO_2 reclaiming tower and relief cooler, digester, bleach and caustic tanks, pulp dryer, indirect heater, evaporator, grinder, rag boiler, beater, flue gas, etc.

Recording Psychrometers: In machine room, dry loft, finishing room.

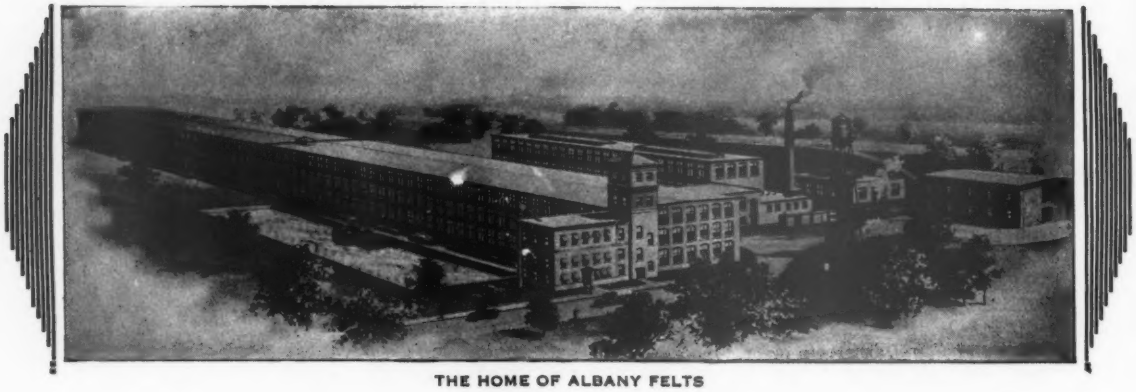
Recording Gauges: On digester, pulp press, evaporator, suction box, suction roll, dryer rolls, etc.

Motion Recorders: On Beaters.

Electric Time Recorders: On paper machines.

Steam Flow Meters: On digester, pulp dryer, paper machine, evaporator, and for metering department steam.

INSTRUMENTS *for* CONTROLLING, RECORDING *and* INDICATING TEMPERATURE, FLOW, HUMIDITY *and* PRESSURE



THE HOME OF ALBANY FELTS

ALBANY FELTS

FOR COARSE PAPERS

The widespread use of Albany Felts for kraft, newsprint and other coarse papers is a striking example of the soundness of our designing and manufacturing methods. ¶Hardly a new mill on the West Coast, the South, Middle West or East has been put into production on coarse papers in the last five years without Albany Felts. ¶Their remarkable endurance, combined with ample porosity to permit rapid water-removal at high speeds, has led papermakers everywhere to adopt Albany Felts for best results. ¶If you do not know why they are constantly growing in favor for coarse papers on fast-running Fourdriniers, make it a point to try a set soon.

ALBANY FELT COMPANY
ALBANY, N. Y.

OUT OF THE STICKS

MEN WITH THE VISION AND COURAGE OF PIONEERS HAVE PENETRATED THE TIMBERED WILDERNESS OF THE WEST. IN A BRIEF SCORE OF YEARS THEY HAVE BROUGHT THE PACIFIC COAST PULP AND PAPER INDUSTRY "OUT OF THE STICKS", TO STAND AS A VITAL PART OF THE NATION'S INDUSTRY.

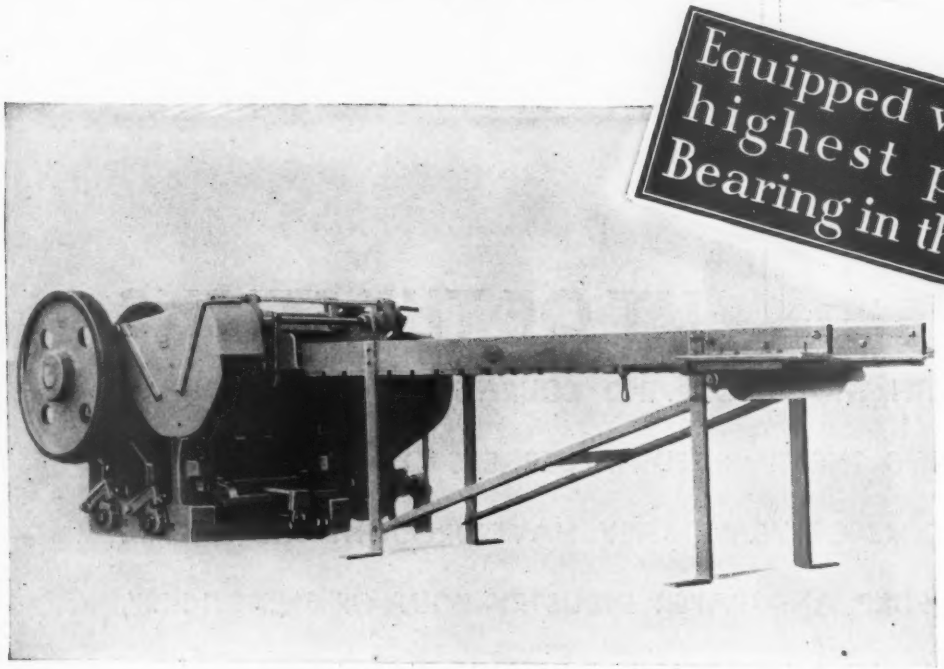
TO SUPPLY CHLORINE, A VITAL FACTOR TO THE INDUSTRY, GREAT WESTERN ELECTRO-CHEMICAL COMPANY WAS FOUNDED IN 1916. TO THE SUCCESS AND SUPPORT OF THE FIRST PULP AND PAPER MILLS, GREAT WESTERN OWES ITS OWN GROWTH AND PROSPERITY. FOR THEM GREAT WESTERN CONTINUES TO PROVIDE PRODUCT AND SERVICE OF UNFAILING RELIABILITY.

GREAT WESTERN ELECTRO-CHEMICAL COMPANY

SAN FRANCISCO
PLANT: PITTSBURG, CALIF.
SEATTLE: 514 FOURTH AVENUE

ANOTHER MANUFACTURER IN THE PAPER INDUSTRY THAT USES SKF BEARINGS

TAYLOR, STILES & COMPANY



HARD JOB? SURE...BUT SKF BEARINGS JUST THRIVE ON SUCH WORK

FIVE outstanding points of superiority are stressed by Taylor, Stiles & Company in featuring their latest No. 20 Multiplex "Giant" Rag Cutter. And the first one on the list is..."Main Bearings SKF Roller Type." We refer to them as SKF Spherical Bearings and they certainly are built for the brute jobs of the paper industry... and every industry.

Right at the start, SKF Spherical Bearings bear the brunt of the hard work on this rag cutter. They must stand all the strains and abuse that come along. But they do so without a whimper, always running smoothly and easily under the severest demands. You'll have to look hard to find any wear in them after long service. They never require adjustments. Occasional lubrication is the only attention required. Such performance naturally comes before price consideration. At least 47 manufacturers of machinery for the paper industry think so.

SKF Industries of California, Inc.

221 Eleventh St. San Francisco | 480 Burnside St. Portland. Oregon | 1114 South Hope St. Los Angeles

2578

EQUIPPED WITH THE HIGHEST PRICED BEARING IN THE WORLD

Means just this

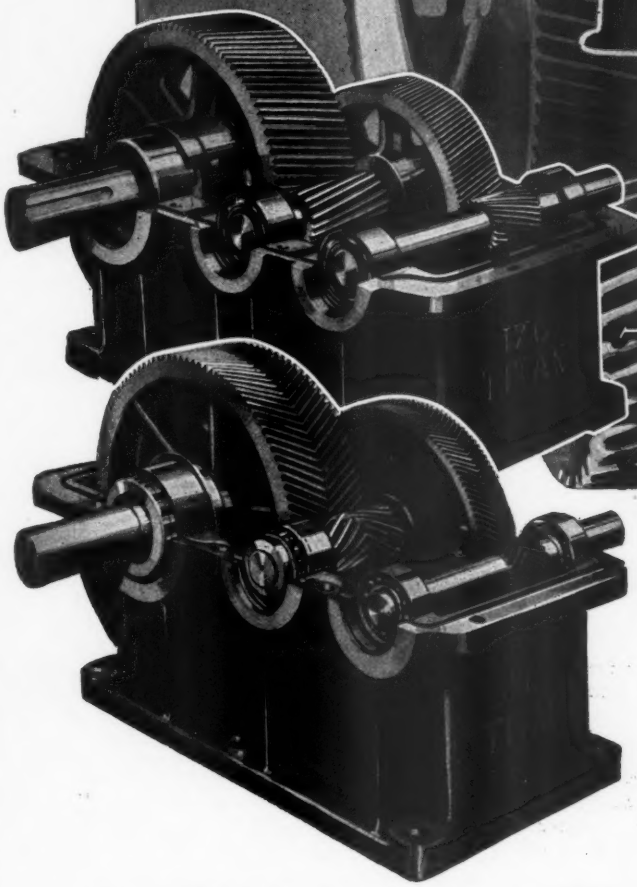
SKF

Ball and Roller Bearings

That the manufacturers whose product is illustrated above preferred to pay more for their bearings and less for servicing or replacing them. They preferred to pay a higher price in the beginning than many times this higher price in the end. And, finally, they preferred to economize by using SKF bearings because they are made to do their job, not to fit a price list.

When writing to S. K. F. INDUSTRIES, INC., *please mention* PACIFIC PULP AND PAPER INDUSTRY

for Heavy-Duty Drives Use



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H... BONE OR ...AL

... REDUCERS

IXL

Every Speed reduction problem has its own specific requirements.

Proper selection of the right unit for the job is the biggest factor in satisfactory service and long life.

The "TITAN" line is available with either Herringbone or Helical types, whichever best suits your special requirements. Call on our Engineering Department to get the relative merits of these two types as they apply to your special job.

Seventy Years of Engineering Experience Is Behind the "TITAN" Line

FOOTE BROS. GEAR & MACHINE CO.

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Sales and Engineering Offices in All Principal Cities U. S. A. and Canada

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FOOTE BROS. GEAR & MACHINE CO. 111 N. CANAL ST. CHICAGO ILL.

Dept. 24

YES, we would like to receive full information on the IXL "TITAN" Line.

Signed_____

Address_____

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Representatives on the Pacific Coast: F. Somers Peterson, 57 California St., San Francisco, Cal. Telephone: Sutter 5416. Sutton & Co., 2008 E. Slauson Ave., Los Angeles, Cal. Telephone: Jefferson 2228. C. M. Lovsted & Co., 2212 First Ave. So., Seattle, Wash. Telephone ELiot 2945.

Puget Sound endorses the Noble & Wood Pulper

In the new 175-ton bleached sulphite mill of the Puget Sound Pulp & Timber Company, the Noble & Wood Pulper is satisfactorily reconverting broke into strong, full grade pulp. The inclusion of the Pulper in this, one of the finest and most modern mills in the world, is a highly significant endorsement.

The Noble & Wood Pulper is the *modern* medium for salvaging broke, hard laps, roll butts and materials ordinarily wasted. It repulps these materials without shortening or multilating the fibres. Its capacity is enormous — it cannot be clogged and operation can be made continuous.

It starts repulping instantly and completes the cycle much sooner than a broke beater can be even partially furnished. The hydrated pulp drawn from the Pulper needs very little further preparation. Subsequent beating time is reduced to a negligible minimum—in some cases entirely eliminated. Operation cost—power and maintenance — is amazingly low.

The Noble & Wood Pulper is justifying its presence in many diversified mills by saving the beaters, cutting time and costs, and converting into good, saleable stock materials often consigned to the furnace. Let us show you how well it can fit into your mill.

Other Noble & Wood efficiency equipment included in the Everett mill is the group of propeller type agitators used in the stock chests. You'll be interested in the full performance story of these agitators—write for it.

NOBLE & WOOD
MACHINE COMPANY
Hoosick Falls New York

Published by the Consolidated Publishing Co., in Seattle, U.S.A., on the 15th of each month—semi-monthly in March.

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LLOYD E. THORPE, Editor
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THE PACIFIC COAST JOURNAL FOR PRODUCERS, CONVERTERS, AND DISTRIBUTORS OF PULP, PAPER, AND BOARD.

SEATTLE 71 Columbia Street
PORTLAND Sherlock Building
SAN FRANCISCO 369 Pine Street
LOS ANGELES Douglas Building

¶ The American mania for steadfast adherence to the idol of "bigger and better" is, in this period of business hesitancy, contributing its share to executive insomnia while at the same time developing some new wrinkles in financial statement engineering.

¶ It takes a long, strong gulp to swallow the bitter potion of pride and to admit honestly that earnings this year not only failed to exceed the previous year by the usual percentage, but actually showed a decline.

¶ Oftentimes the board of directors lies in an uncomfortable bed—albeit of its own making. It has on the one hand the incontrovertible fact that profits are less, but it has in the other mitt the urge to preserve its financial face and figure which constitutes its fortune in stock market transactions.

¶ Consequently, caught in this squirm, some executives have been burning the midnight oil and chewing up pencil ends figuring out new methods of how to show a profit when the business actually got whacked for a temporary loss.

¶ In a way, this new sport is only an old familiar game played with a reverse English. Time was when the underlying motif of doping the financial statement was to knock the humps off the net profits so people wouldn't get to participating too freely in the dividends.

¶ Right now, however, altho some businesses find themselves a bit winded after the 1929 sprint, they are trying to display a healthy condition by doing a little financial face lifting, shifting around items like depreciation, reserves, inventories, and what not to plump the hollows.

¶ Even in normal times too many financial statements are deliberately designed to make the true state of affairs stand out as clearly as a Negro stoker in an unlighted bunker at midnight. In the present period investors would do well to scrutinize eanrings thru a salt crystal.

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Union Screen Plate Co. 100

Waterbury, H. & Sons Co. 94
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Western Gear Works 18
Whittle, George V. & Co. 101
Williams Apparatus Co. 19
Wright, Percy E. Engineering Co. 102

Zaremba Co. 93
Zellstoff & Papier 103

Woodpulp Agents

We act as sales agents and distributors for the entire output of Sulphite and Kraft Producing Mills.

Paper Distributors

Mill agents and dealers for the distribution of all classes of paper in the Eastern markets.

BULKLEY, DUNTON & COMPANY

75-77 DUANE STREET

NEW YORK

NO HELP WANTED

THE two sound kernels of wheat sifted from the bushel of propaganda chaff written, spoken and otherwise broadcast about the Russian pulpwood imports are:

1.—THE PROSTITUTION OF THE AMERICAN PAPER & PULP ASSOCIATION BY THE DOMINATING EASTERN INTERESTS FOR A MESS OF RUSSIAN PULPWOOD POTTAGE TO THE SPECIFIC END THAT DEVELOPMENT OF THE PULP INDUSTRY ON THE PACIFIC COAST MAY BE PUT UNDER THE THUMB.

2.—THE MEXICAN JUMPING BEAN TACTICS OF THE UNITED STATES TREASURY DEPARTMENT IN PLACING AND LIFTING EMBARGOES ON RUSSIAN PULPWOOD WHEN SUBJECT TO THE HOTPLATE INFLUENCE OF THESE SAME EASTERN INTERESTS.

The determined effort of Eastern industry to squash the development of industry in the Western part of the continent is nothing new. They would prefer that regions outside their home grounds continue to function as outlying colonies, supplying raw materials when needed, but when competing, NO! The bluebloods of New England operated ships to import cheap black labor into the South that New England textile mills might have cotton. When the textile mills started moving South into those fields of cheap labor, that was different. Many other pages can be lifted from the book of commerce to cite examples of snuffing embryo industries in the Western states by Eastern paws.

The present stand of the American Paper & Pulp Association is not the first uninvited attempt to shoulder the responsibility of guiding Western industrial trends. Being artificial and uneconomic the effort is doomed eventually to the same outstanding success as achieved by the dauntless gentleman in armor who in medieval times jousted with the windmill. Are further examples of unsound economics needed with the present day examples of pegging the markets in copper, wheat, stocks, and what not?

If the American Paper & Pulp Association purports a surface sympathy for the growing pulp and paper industry of the Pacific Coast let it explain the "Special Russian Edition" of "PULPWOOD", dated June 30, 1930, the association publication of its Pulpwood Department, an edition sponsored by a special note of introduction from the association's general manager, Jesse H. Neal.

In this edition the association repeats that it has urged the utilization of Russian pulpwood, because:

"With the establishment of Pacific Coast sulphite in eastern markets . . . . . the production of sulphite pulp in the northeast is handicapped because of relatively high domestic Canadian and domestic wood prices. Anything weakening the price of wood in the Northeast would tend to retard the movement of sulphite pulp production to the Pacific Coast . . . ."

The question is one of economics. The Atlantic areas have eaten their cake, and now, with forests denuded, the dog would lie in the manger.

In the same edition of "PULPWOOD" it is stressed that the Russian pulpwood supply is to be considered as only temporary, that the pulpwood timber readily available for export in competition with other sources of supply is limited to a fringe principally in the Archangel district which can be logged and loaded with comparative ease.

The inconsistency of the association's stand is plain in this further statement taken from the same edition of "PULPWOOD":

"The Russian wood imports are not sufficiently dependable or permanent to encourage new construction in the East, but they can have the effect of keeping the industry within its stride in its expansion in the new regions."

Is it the business of the American Paper & Pulp Association to say when and where the industry shall build?

In short, it would appear that the American Pulp & Paper Association is not an AMERICAN Paper & Pulp Association, but an institution run for the particular benefit of an Eastern group that surrounds the executive offices and has no hesitancy in prostituting the association to its desires. There is evidence of mountainous gall in asking Western industry to pay dues which are used to buy powder and shot for its own execution.

As for the second point, the vacillating policy of the assistant secretary of the Treasury in reversing the pulpwood embargo once placed, the action is perhaps best explained in the visitation of Eastern industrialists to said Treasury office and the lifting of the embargo immediately thereafter. Thumbscrews did not pass entirely with the Inquisition.

The idea of shifting the burden of proof that Russian pulpwood is not the product of free labor from the importer to the industry as a whole is a subterfuge without paint. PACIFIC PULP & PAPER INDUSTRY takes no stand on the right or wrong of the Russian pulpwood imports. It is more disgusted than interested in the political fodder which the situation has developed in this period of elections. But it does decry the puerile arguments of Eastern paper interests which pull the association wires.

If the United States, or any one of the nations with which it enjoys full trade and diplomatic relations, is accused of unfair practices, an investigational system permits deep digging for facts. As for Russian pulpwood, the American Paper & Pulp Association nonchalantly tacks a halo above the Soviet representatives and dismisses the subject with,

"No further interference with the movement of Russian pulpwood is anticipated, for Russia now understands the requirements and may be depended upon to remove any taint of suspicion from future shipments."

Indeed! If the Soviet were exporting newsprint, bond and ledger, book, writing and a few more grades of finished papers would the halo fit as snugly?

The order has gone out—CRUSH THE GROWING PULP AND PAPER INDUSTRY OF THE WEST. GIVE NO QUARTER!

Those Paper Mills in Alaska

Those two paper mills in Southeastern Alaska projected by George T. Cameron of the San Francisco Chronicle and I. and J. D. Zellerbach, executives of the widespread Crown Zellerbach Corporation, at this writing appear to be just between hay and grass.

Following three years of field investigation the two interests filed applications for final license to proceed with hydro-electric developments in the Juneau and Ketchikan areas, respectively, the market for which power was to be found in new pulp and paper mills. These final applications, filed last June, have now been checked in the field by two government men, J. C. Dort, who came out from Washington, D. C., for the purpose, and B. F. Heintzlemann, official negotiator for the U. S. Forest Service in Alaska.

Upon completing the field check Mr. Dort and Mr. Heintzlemann conferred with the principals on both projects at San Francisco and then left for Washington, D. C., the latter part of August.

The applications, together with the government men's report, now rest with the Federal Power Commission. It was hinted that should a final permit be granted before October 1 the Cameron group at least might get a construction camp into the field during the present Fall season to begin work on the hydro-electric development.

At the earliest, it is scarcely anticipated that another group will have an operating pulp or paper mill in Alaska in less than 2½ to 3 years.

Paper Liners for Lumber Shipments

Fine lumber goes to market properly wrapped in paper in these days of better merchandising. The lumber gets there in better condition and the customers like the idea, reasons enough to argue the cause of paper. The Shevlin-Hixon Company, cutting fine lumber from Pondosa pine in the Bend, Oregon, country, is now protecting from 15% to 20% of its gross shipments in paper lined cars. They have received much favorable comment from customers of Shevlin pine regarding the use of this protection.

The accompanying illustration, together with the description below, sets out how the Shevlin-Hixon Company employs the paper protection.

For the roof covering or ceiling liner a double thickness, waterproof paper is used. This canopy is made of 80-lb. paper and has an asphalt center. The width of canopies is 14 feet and it is made in lengths to suit the different length cars, and when put in place will lap down on end and side walls about 18 inches.

In the center of the canopy running lengthwise are eyelets or grommets spaced about three feet apart. A wire is stretched full length of the car in center under ceiling rafters, and the canopy is fastened to this wire by short strings run through the grommets and tied to the wire. The canopy is then spread out and made fast to the sides of the car, with about three or four inch pitch from center and fastened to side walls of car with cleats or battens, making a dust- and waterproof inner roof over contents.

On the side walls Shevlin-Hixon uses a 96-inch, 50-lb. strong kraft, single thickness paper, which comes put up in rolls of 250 lineal feet. In putting this on they simply stand the roll in one corner of the car and unroll clear around the car back to the starting point. This strip is fastened every few feet with slats or battens. As only one car door is used for loading, they leave the paper on one door intact, but cut out the sides of the other door, fold up and drop down when car is loaded. The floor of car is not papered if in good order.

Two men can paper a car complete in 50 minutes and the cost for paper and labor is approximately $4.00 to $4.50, depending upon size of car. The amount of paper used in relation to the amount of lumber covered is probably about 1 lb. of paper to one thousand feet of lumber.

Berkey on Bank Board

George P. Berkey, vice president of Crown Willamette Paper Company and general manager of operations in Oregon and Washington, has been elected a director of First National Bank of Portland.

Fine lumber gets to the market in better condition when the railroad car is lined with paper. The Shevlin-Hixon Company finds the method inexpensive and worth while.

TAPPI COMMITTEES
With National Chairman and Pacific Representatives

Education Committee:
Chairman: H. G. Noyes, Wisconsin Vocational School, Appleton, Wisconsin.
Pacific Representative: M. W. Black, Inland Empire Paper Company, Millwood, Washington.

Management Methods Committee:
Chairman: L. C. Reynolds, American Writing Paper Company, Inc., Holyoke, Massachusetts.
Pacific Representative: Max Oberdorfer, St. Helens Pulp & Paper Company, St. Helens, Oregon.

Patents Committee:
Chairman: C. W. Rivise, Philadelphia, Pennsylvania.
Pacific Representative: C. W. Morden, 206 Oregonian Building, Portland, Ore.

Waste Committee:
Chairman: C. M. Baker, American Pulp and Paper Association, Madison, Wisconsin.
Pacific Representative: R. J. Schadt, Hawley Pulp & Paper Company, Oregon City, Oregon.

Heat and Power Committee:
Chairman: J. D. Rue, News Print Service Bureau, 342 Madison Avenue, New York.
Pacific Representative: D. E. Cousins, Union Bag and Paper Power Corporation, Tacoma, Washington.

Equipment Committee:
Chairman: G. S. Brazeau, Appleton Machine Company, Appleton, Wisconsin.
Pacific Representative: Ray Smythe, Willamette Iron and Steel Works, Portland, Oregon.

Materials of Construction Committee:
Chairman: J. D. Miller, York Haven Paper Company, York Haven, Pennsylvania.
Pacific Representative: Professor S. H. Graf, Oregon State College, Corvallis, Oregon.

Fibrous Materials Committee:
Chairman: Jessie E. Minor, Rag Content Paper Manufacturers Association, Springfield, Massachusetts.
Pacific Representative: L. Freedman, University of Oregon, Eugene, Oregon.

Non-Fibrous Materials Committee:
Chairman: A. C. Dreshfield, Paper Makers Chemical Company, Kalamazoo, Mich.
Pacific Representative: Dr. W. Hirschkind, Great Western Electro Chemical Company, Pittsburg, California.

Preparation of Materials Committee:
Chairman: F. H. Johnson, Jr., Consolidated Water Power and Paper Co., Wisconsin Rapids, Wisconsin.
Pacific Representative: W. E. Breitenbach, Grays Harbor Pulp and Paper Co., Hoquiam, Washington.

Mechanical Pulping Committee:
Chairman: J. H. Slater, Escanaba, Michigan, Escanaba Paper Company.
Pacific Representative: E. P. Ketchum, Powell River Company, Ltd., Powell River, B. C.

Alkaline Pulping Committee:
Chairman: E. S. Hinman, P. H. Gladfelter Company, Spring Grove, Pa.
Pacific Representatives: Ralph Reid, St. Helens Pulp & Paper Company, St. Helens, Oregon, and R. S. Wertheimer, Longview Fibre Company, Longview, Washington.

Acid Pulping Committee:
Chairman: L. E. Jonte, Hoberg Paper & Fibre Company, Green Bay, Wisconsin.
Pacific Representative: Sigurd Norman, Spaulding Pulp & Paper Company, Newberg, Oregon.

Paper Manufacture Committee:
Chairman: L. M. Yoerg, American Writing Paper Inc., Holyoke, Massachusetts.
Pacific Representative: B. T. McBain, Portland, Oregon.

Wood Testing Committee:
Chairman: W. H. Monsson, Forest Products Laboratory, Madison, Wisconsin.
Pacific Representatives: W. R. Benson, National Paper Products Company, Port Townsend, Washington, and R. H. Scanlon, Powell River Paper Companpy, Powell River, B. C.

Paper Testing Committee:
Chairman: B. W. Scribner, U. S. Bureau of Standards, Washington, D. C.
Pacific Representative: C. R. P. Cash, St. Regis Kraft Co., Tacoma, Washington.

Pulp Testing Committee:
Chairman: D. E. Cable, Fibre Products Dept., Mechanical Rubber Company, Cleveland, Ohio.
Pacific Representative: H. K. Benson, University of Washington, Seattle, Wash.

Pacific Section
T·A·P·P·I
Fall Meeting
Saturday, Oct. 11, 1930
Hotel Multnomah
PORTLAND, OREGON
Election of Officers

WITH two highly successful semi-annual meetings to point to as the first accomplishments of a young organization, the Pacific Section of TAPPI at this date is preparing to convene for a third time and set new records. The date has been finally set for Saturday, October 11, and the place will be the Hotel Multnomah, Portland, Oregon.

Altho October 4 was first announced as the date of the meeting the time was changed to more nearly accommodate two of the feature speakers who are coming out from the Eastern states to attend the meeting. At an executive committee meeting held in Tacoma on August 25, the October 11 date and the meeting place were definitely chosen and announcement invitations have been broadcast heralding the event.

The second Fall meeting will start off with a general session opening at 10 a. m., Saturday. Dr. W. B. Scribner of the Paper Section of the U. S. Bureau of Standards, Washington, D. C., will present an address on the function of his governmental department in its relation with the industry. His address is expected to provide many points of interest.

Another speaker on the morning program will be Dr. C. E. Curran, of the U. S. Forest Products Laboratory, Madison, Wisconsin. Dr. Curran's discussion will deal not only with the work of the laboratory in a general way, but will outline in some detail the studies already initiated and proposed to be undertaken under the increased appropriations recently awarded to the Forest Products Laboratory for special studies on the pulping of Western woods.

Aside from these two speakers, both of whom are scheduled for the morning session, the meeting will resolve itself into more of a round table than a speaker-and-audience relation. As outlined in previous issues of PACIFIC PULP & PAPER INDUSTRY the function and scope of the many TAPPI committees, particularly those on which the Pacific Section has representation, will be discussed by these Pacific members. For convenience, these committees, the national chairman and the Pacific Section member or members are repeated.

One big business of the meeting will be the annual election of officers for the ensuing year. This event will be the second regular election.

As at both the Tacoma meeting held last fall and at the Longview meeting held last April, the evening banquet is looked forward to with considerable anticipation. The air of joviality and good fellowship prevailing at the two preceding banquets still lingers as a pleasant memory for those who attended. This year the banquet committee is expected to inject some new stunts.

Crown Shows Improved Earnings

In a joint release of earnings statements of Crown Zellerbach Corporation and Crown Willamette Paper Company, the Crown Zellerbach Corporation and its subsidiaries report gross profits aggregating $2,856,876 before depreciation, depletion, bond and debenture interest and income taxes for the three months ended July 31, 1930. For the quarter ended April 30, 1930, gross profits totaled $2,675,941.

Net income available to Crown Zellerbach Corporation amounted to $758,844 for the period, equivalent, after preferred and preference dividends to $0.185 per share on the 1,991,680 common shares outstanding at the end of the quarter. For the preceding three months net income totaled $750,660 equivalent, after preferred and preference dividends to $0.181 per share on the same number of outstanding shares.

Earnings statement for the two quarters follow:

	Three months ended July 31, 1930	Three months ended April 30, 1930
Profit before depreciation, depletion, bond and debenture interest, and U. S. and Canadian Income Taxes	$2,856,876	$2,675,941
Depreciation	914,457	850,749
Depletion	118,577	132,673
Bond and Debenture Interest	488,223	373,298
U. S. and Canadian Income Taxes	150,533	148,487
Minority Stockholders Interest	426,242	420,074
Net Income	758,844	750,660
Preferred and Preference Dividends	389,024	390,570
Balance	$369,820	$360,090

Crown Willamette Paper Company and its subsidiaries including Pacific Mills, Ltd., reports gross profits of $1,840,646 before depreciation, depletion, bond interest and income taxes for the quarter ended July 31, 1930. Net income after all charges including minority stockholders interest amounted to $639,352. For the three months ended April 30, 1930, gross profits aggregated $1,710,550 and net income after all charges totaled $522,197.

Detailed earnings statements for the two three-month periods are as follows:

	Three months ended July 31, 1930	Three months ended April 30, 1930
Profit before depreciation, depletion, bond interest and U. S. and Canadian Incomes Taxes	$1,840,646	$1,710,550
Depreciation	633,496	615,652
Depletion	118,577	132,673
Bond Interest	335,396	335,787
U. S. and Canadian Income Taxes	99,083	84,013
Minority stockholders interest	14,742	20,228
Net Income	639,352	522,197

President I. Zellerbach of Crown Zellerbach Corporation commented on the results as follows: "Though the gross earnings for the first quarter of the current fiscal year were $180,934 higher than the preceding quarter, they continue to reflect the existing adverse general business conditions. Indications, however, point to a substantial increase in sales in the second quarter which it is anticipated will result in larger earnings.

"The directors at the monthly meeting held on August 28 declared the regular quarterly dividend of 25c per share, payable October 15 to holders of record September 30."

Powell River Extension Takes Shape

Construction of the Powell River Company's new power project at Lois River has made good progress during the summer months and it is now possible to visualize what many units of the big job will be like when completed.

The stripping of forms and erection of interior steel work now in progress in the machine room, which is to house the paper machine whose operation is made possible by the Lois River development, will be followed closely by the placing of roofing and the installation of machinery.

The groundwood mill is also well under way, and this will be completed soon after the machine room is finished.

In addition to these two main buildings, the following work is now being pushed ahead: Extension of the steam plant, extensions to the wood room and installation of additional chip conveyor equipment in the digester house; the erection of a new digester, together with the necessary acid cooling and storage mediums; the installation of equipment and piping in the new blowpit room recently completed; installation of a sulphur melting system; extensions to the present fresh water filter, and the laying of a 30-inch wood stave main to service the new mcahine room and groundwood mill, and other works of a minor nature.
nature.

The Lois River development is attracting considerable interest now that the clearing and grading work has been finished and construction is in full swing. The power house is rising steadily from the rock, the first concrete having been poured during August. Some of the cradles for the steel penstock have been poured and erection has already been started. The drifting of the tunnel is about 70% complete, nearly 4000 feet having been bored. Logs are being placed at the crib dam at the rate of something over 3000 lineal feet per week and over 30,000 feet have been placed to date.

About 370 men are now being employed on the Lois River job and about 270 on the Powell River extensions.

The present project involves expenditure of some $8,000,000 and provides the company with a new source of hydro-electric power, a new paper machine, new ground wood mill and other additions.

Another Machine for Salem Mill

Equipment for the installation of a fourth paper machine in the Oregon Pulp & Paper Company plant at Salem, Oregon, was reported to have been shipped early this month by the Bagley & Sewell Company. Work on the foundation to carry the added unit is being pushed rapidly and it is expected that the new machine will be installed and in operation in the early fall. Two additional beaters to be used in connection with the fourth paper machine were recently erected. The machine is a cylinder type which has stood idle in the plant for some time. The Salem mill operates three other paper machines of the fourdrinier type.

McBain Goes East Again

B. T. McBain, Portland pulp and paper engineer, left early this month for New York, where he will do special work in connection with the industry for the next several weeks. He did not make a public announcement regarding his work, nor did he disclose the name of the concern by whom he had been retained. Mr. McBain, who has maintained offices in the Porter Building for the past two years, stated that he would probably return to Portland late in December.

Markham Studio, Portland

WHEN EAST MEETS WEST, THERE'S A WEDDING

F. W. Leadbetter, executive head of several Pacific Coast paper mills, smiles as he gives his daughter, Dorothy, in marriage to Nils Gottfried Teren of New York, manager of the kraft interests of the St. Regis Paper Company. At the left are Mrs. Ambrose Cronin, Jr., another daughter of Mr. Leadbetter, and next, Mrs. F. W. Leadbetter. At the right is George Teren, brother of the bridegroom. The marriage ceremony was performed at the Leadbetter summer home at Camas, Washington, on August 26.

Talk News Print Mill in B. C.

Negotiations for the establishment of a 500-ton pulp mill on the Fraser River near Fraser River by interests close to the Hearst organization are reported to be making definite pogress, altho details are not yet available.

James A. Rear, of Palo Alto, Calif., has been taking the chief part in the negotiations, altho Howard T. Cole, New York financier with large timber holdings on the British Columbia mainland and on Vancouver Island, is said to be identified with the deal. Mr. Cole paid a recent visit to Vancouver in connection with the project. Several million dollars are said to be involved.

An option taken on the 70-acre site will expire in November, so that some definite action is anticipated before then.

A water supply from Coquitlam Lake or the Fraser River is said to be contemplated, and tentative arrangements for power have been made with the B. C. Electric Railway, which controls several power plants in that vicinity.

According to current reports, it is proposed to bring pulpwood from the west coast of Vancouver Island and also from timber limits along the Thompson River, in which latter event the logs would probably be boomed and floated down the Fraser River to the mill, which would be located at a point where ample facilities for booming grounds would be available.

The Vancouver Island timber referred to lies between Alberni and Nitinat Lake and represents one of the largest stands of timber on Vancouver Island, altho government reports indicate that the dominant species are Douglas fir and cedar. However, during the war a large amount of Sitka spruce was taken out from that section for airplane stock and several small logging operations are now engaged there in the spruce business. The cheapest transportation would probably be afforded by the water route from Port Alberni or a logging dump further south yet to be established. There has been some talk recently to the effect that the Canadian National Railways would extend their Island lines into the region.

Asks That Pulp Dumping Be Stopped

In a petition to Seymour Lowman, assistant secretary of the U. S. Department of Treasury, President Ossian Anderson of the Puget Sound Pulp & Timber Company, charges the pulp producers of Norway, Sweden, Finland and Germany with selling wood pulp in the United States at less than the cost of manufacture and asks enforcement of the anti-dumping laws.

In the petition Mr. Anderson cites the magnitude of investments in Pacific Coast pulp plants which are endangered if not protected against indiscriminate sales practices.

The petition refers to a pulp dumping investigation effected by the Treasury Department some months ago which reported no findings of consequence and charges that the investigation started with countries which produce and export to the United States in insignificant amounts whereas investigation of the alleged real offenders, that is Sweden, Norway, Finland and Germany, was delayed until the last, by which time the offenders had had plenty of time to be forewarned and correct their practice.

Biffar Refiner for Screenings

With the installation of two Biffar combined refiners and screens in the new pulp mill of the Puget Sound Pulp & Timber Company at Everett, Washington, a total of five units has been installed in Pacific Coast mills.

The Biffar refiner works up knots, slivers, shives and other waste in the manufacture of chemical pulps for use in strong wrapping paper and also refines groundwood screenings for news stock.

Standard units include in one housing a refiner and screen and range in capacity from 3 to 11 tons per 24 hours, air dry basis, capacity depending on class of material refined and degree of refinement desired. Material not passed by the screen is recirculated and all material discharged is of desired size.

Whether the material to be refined is routed to the screen or refiner first, depends on whether the stock contains excesses of fine or coarse material. In any case recirculation is thoro until 100 per cent refinement is attained.

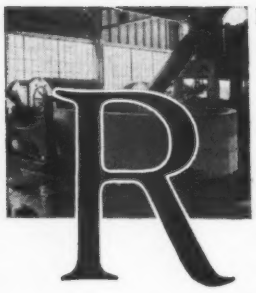
The refiner stones are made of basalt lava provided with spiral grooves. In general the stones need redressing about once in three months, and a set of stones will last up to 2½ years.

The refiner action is to separate the fiber bundles with a minimum-cutting action.

Installation is very simple as the machine is entirely self-contained and needs only to be set on a base, hooked to the driving motor, and piped for intake and discharge of stock.

Methods of BUYING and SELLING PULP are changing

A discussion
By R. J. WAINWRIGHT
PRICE & PIERCE, Ltd.



REGARD the old-time pulp salesman who, quitting the game, say five years ago or possibly only three, starts out again today to call on his old friends with a line of different grades of pulps. He would, no doubt, before very long, begin to believe that his old-time pep had left him or that his friends had changed considerably.

Those fellows who were his competitors before his lay-off and who have continued right along carrying the old sample case, could soon tell him that it is not the buyers who have changed, but that pulp selling and buying is gradually changing. A few years ago the buyer would look at a sample, tear a bit off a piece and chew it for a while, and if he liked to do business with this particular salesman or his firm, and if he were in need of some pulp, he would O. K. the pulp and place the order.

Not so today. Call on most any buyer today and offer him a sample of pulp you wish to sell and he will immediately look up his laboratory reports on this particular grade. Should he have none, he will ask that enough pulp be sent to him so that tests can be made. Should the pulp offered show on his laboratory reports that it is a soft pulp, without a great deal of strength, that it beats up easily and that the dirt count is fairly low, and if the price were right, a sale might be made if this were the type of pulp he wanted.

However, if what he was after was a pulp that had to show considerable strength, consideration would not be given to the pulp offered. In the old days a little thing like this would not necessarily stop a sale, providing the buyer wanted some pulp right away.

Buyers today for most paper mills using a considerable tonnage of pulp have laboratory reports on almost every grade of pulp offered them. Should two, or possibly three, grades of pulp show up on these reports as being satisfactory for the required purpose, then price enters into the matter. Should price on all three be the same, then the salesman who has the inside track into this particular mill, gets a break.

However, in most cases, there would most likely be some point on one grade that might give it preference over the others. It might show that it comes to maximum strength quicker, it might have better color, it might not turn as red as the others. Technical control at the paper mills is defining these pulp characteristics with an ever-increasing exactitude.

The pulp mills themselves have been slower, with the exception of a very few, in getting their pulps under technical control. Most of them, of course, have in various ways controlled their cooks so that a more or less uniform pulp has been made according to their own standards and ideas of what kind of pulp they wanted to make. However, they have given no thought to what the paper mill might want in the way of pulp.

This condition is gradually, but very definitely, changing. Today we find pulp mills with fully equipped laboratories and I fully believe that it will only be a matter of a few years when most pulp mills will be able to furnish a graph with each shipment of their pulp showing all the information a paper mill would require to know about that particular lot of pulp.

In my estimation, the Brown Corporation has done a great deal in this field. They have a chart on which appears all their different grades of pulps, showing in curves comparisons as to folding strength, hydration as to maximum and minimum beating time, also pop and tear. A buyer at a glance can pick out what grade would best suit conditions in his mill.

Mills abroad are gradually working to this end and the Ljusnan mill in Sweden now has a fully equipped laboratory and a chemist who has had experience in this country in charge. They can give reports on their kraft and sulphite corresponding in methods of TAPPI and the American Paper & Pulp Association. Other mills are following along this line also.

I believe this control of cooking methods in pulp mills and knowledge of just the grade of pulp the buyer requires will simplify things all around. It would take but little effort on the part of some mills to produce more demand for their grades and possibly put them in a class where they would get a better price for their product and it certainly should make it much easier for the mills converting this pulp into paper or board.

If we look at these changing trends in the pulp industry from another angle we see that a shift in point of view is developing with the pulp mill. Where before the pulp mill made pulp to sell, and then went out to find a buyer, today we find the pulp mills first inquiring into the specific wants of the paper mill and then making exactly that product.

But to be able to make an exact product the element of science must enter into the scene in increasing proportions. The technical control laboratory steps out of the class of perfunctory testing where the main duty was to find out how good or how poor is the product that is already made. It steps into a new role, in which it determines what IS to be made.

But it can determine nothing unless it has a full acquaintance with all things going into the manufacture of the pulp and is equipped to control and proportion these factors. We might draw a simple analogy here from the baking of the housewife and that of the big commercial bakery. The housewife went by rule of

thumb and, while usually her product was good, she never could be sure because her flour might be different, the other ingredients might vary without her knowing it, her fire might be hotter or colder than needed. Altho friend housewife often became a very good guesser, still she was only a guesser, because she never went to the bottom of things going into her baking. The big commercial bakery of today analyzes its flour, tests its every ingredient, controls its heat and time elements and turns out a uniform product day after day.

Many of the paper mills today are buying pulp where yesterday they had woodlots at their own back door and were making their own pulp. Where pulp and paper are made under the same roof the paper maker can correct errors and variations in the pulp with some facility. But if that pulp is coming from a point two or three thousand miles away the paper maker pretty well has to take it or leave it. And if he has to juggle the pulp on the paper machine until he gets the sheet just right he loses much time, material and good temper.

Competition is forcing paper standards higher and higher. Couple this condition of rising standards with an increasing production of pulp and it is quite apparent that pulp is being elevated out of the class of a mass commodity like coal or wheat and is getting to be something mighty specific. That this tendency is recognized by the more aggressive pulp mills is seen in their efforts to search out buyer needs and then equip and enlarge their laboratories and staff them with technical men who can meet these needs.

Colorado Expecting Big Things from Timber Sale

Leading cities in south central Colorado are putting up strong bids to have the paper mills expected to be built by the International Paper Company constructed in their midst. Pueblo and Alamosa seem to offer the most likely locations at present and business leaders in both cities are presenting facts and figures showing why the mill should be built in their city.

On August 9 the Secretary of Agriculture overruled the joint protest of the Combined Locks Paper Company and the New Mexico Lumber Company against the sale of two million cords of pulp wood in the Upper Piedra area and the Rio Grande South Fork area in southwestern Colorado to the International Paper Company. The former company maintained that the International bid was "too high to be feasible" and that its own bid on the Piedra area was larger than that of the International.

The Secretary of Agriculture overruled both contentions and approved the acceptance of the bid by Allen S. Peck, regional forester. Under the terms of the contract the International Company is to pay $5,438,200 for the two million cords in both tracts and over a thirty year period. The sale was the largest single one ever made by the forestry department.

No announcement regarding the plans of the International Company has been forthcoming and has been waited for with greater or less impatience ever since the announcement of the bidding was made. Almost daily reports are sent out from the contesting cities that cutting of the timber is expected to start soon and that at least one five-million dollar mill is to be built in the region.

From Pueblo comes the report that if the mill is erected there the International Company could augment its supply of pulpwood from the great supply of Engleman spruce in the nearby San Isabel forest as well as from privately owned timber land.

Statisticians are busy figuring what the timber purchase may mean to the region. Assuming that about 100,000 cords of wood will be cut annually it is figured that 400 workmen will be required the year round and many more during the heavy summer cutting months. Something like a payroll of a half million annually is looked for for the next thirty years. The horses, wagons, supplies and food to be required have afforded great diversion for the prognosticators for several weeks. It would be a severe blow to the civic boosters in the region should the company decide not to build a mill but to ship the timber to its other eastern mills.

From International comes little information. In reply to specific query John H. Hinman, woodlands manager of International, told PACIFIC PULP & PAPER INDUSTRY:

"We were the successful bidders for the timber on the San Juan and Rio Grande National Forests in southwestern Colorado.

"Our engineers are studying the development but these studies have not been completed, so we are unable at this time to make any statement in regard to the plans of development."

Fred Shaneman - Marjorie Jeffries

It was, without doubt, a crowning event of social life in Tacoma, Washington, for the 1930 season. And the paper industry, being represented on both sides, had an interest. Fred Shaneman, known up and down the Coast in the industry as the genial sales representative of the Tacoma Electro Chemical Company, was cast in the role of bridegroom with pretty Marjorie Jeffries making up the better half. Marjorie was handed over to Fred by her father, Frank E. Jeffries, manager of the Tacoma Paper & Stationery Compapny, and one of the best known men in the Coast's paper trade. Some 800 guests attended the wedding, held at the Tacoma Country Club on Saturday evening, August 23.

Rainier Mill Sued for Oyster Destruction

Bringing damages sought to a total well over $1,000,000 as the result of alleged destruction of oyster beds in upper Puget Sound in the vicinity of Shelton, Washington, nine new actions were filed last month against the Rainier Pulp & Paper Corporation. The new actions ask a total of $494,847 and are in addition to an amount in excess of $600,000 asked in seven similar suits previously filed.

The suits are brought by oyster growers in the Shelton area who claim that pulp liquor disposal in the shallow waters of upper Puget Sound have seriously injured the oyster beds.

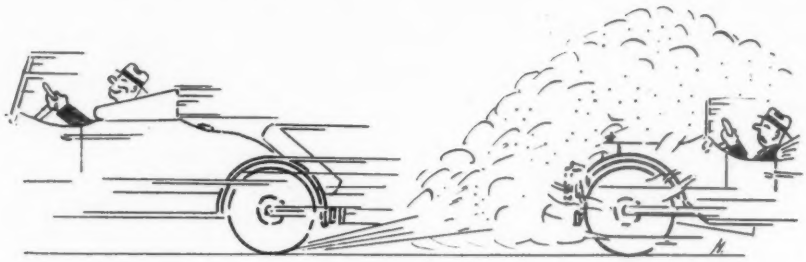
The pollution problem in the region has for a long time been the subject of serious study on the part of state and federal health and fish and game authorities, as well as by the pulp company. Hearings have been held but there has been no positive agreement to date on the effect of the pulp mill operations in the region.

The Rainier Pulp & Paper Corporation has a daily capacity of 180 tons of bleached sulphite pulp. It began production in June, 1927.

Beyerl with Crown Willamette

C. F. Beyerl, formerly at the head of the Western Paper Converting Company at Salem, Oregon, is doing special work in connection with high grade bleach paper for the Crown Willamette Camas, Washington, plant.

Since leaving the Salem plant several months ago, Mr. Beyerl has been spending much of his time in California in an effort to regain his health.



Those Who Follow Are Always Behind

Everyone who has been engaged in the manufacture of pulp and paper for the past decade can recall the time when the present scientific methods for heating and ventilating of mills were first introduced.

The Ross organization was the first to present a practical method for eliminating the waste and inefficiency in heating and ventilating. Devoting all its time and resources to this important branch of engineering, the Ross organization has achieved marked success. ROSS SYSTEMS are operating to maximum advantage in more than three-fourths of the mills that constitute the paper industry in the United States and Canada. Their leadership in this field is unquestioned.

The success of Ross Systems has naturally brought forth, even at this late date, a number of new theories of heating and ventilating. Many of them have, in the past, been tried and found impractical by the Ross organization.

Maintaining its leadership in this field, the Ross organization will continue towards the development of newer and better methods that can add to the efficiency and economy now being secured.

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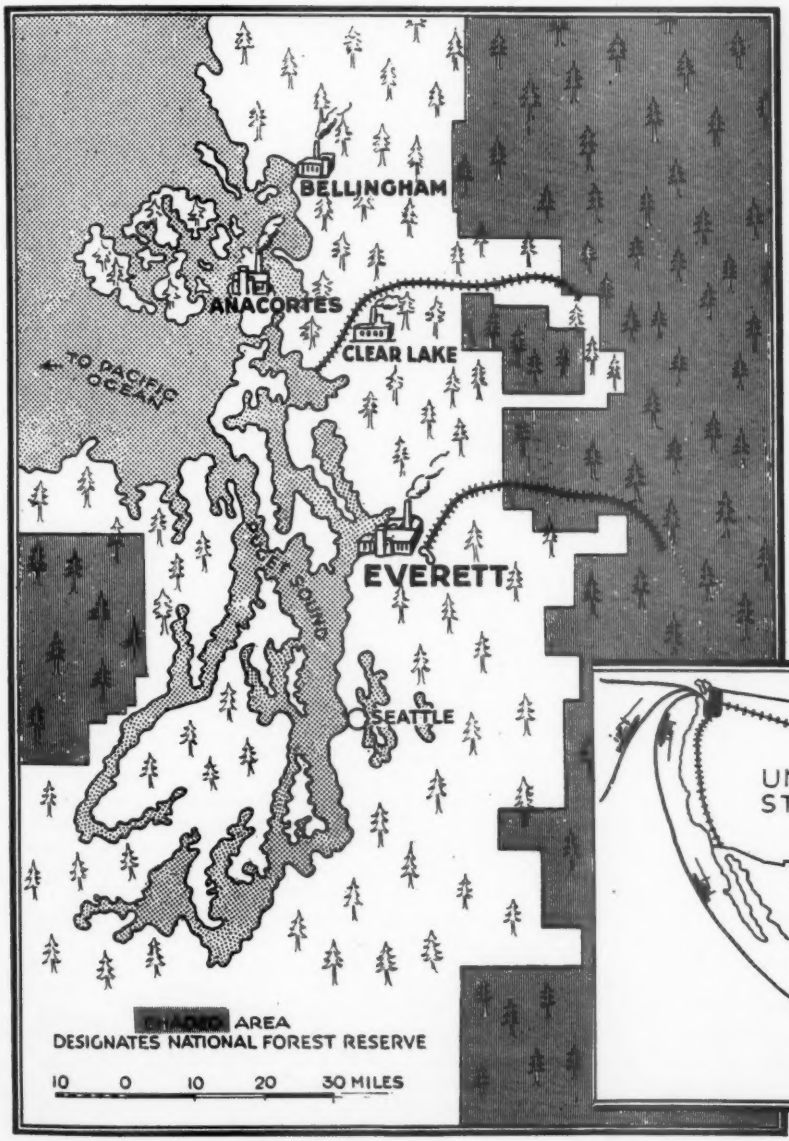

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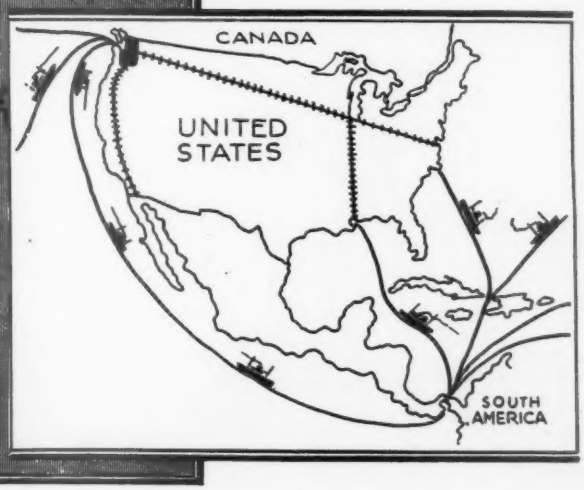
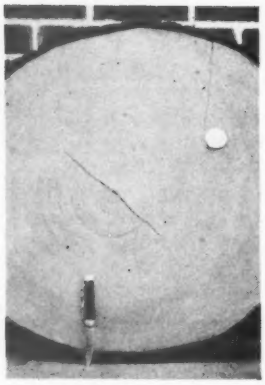
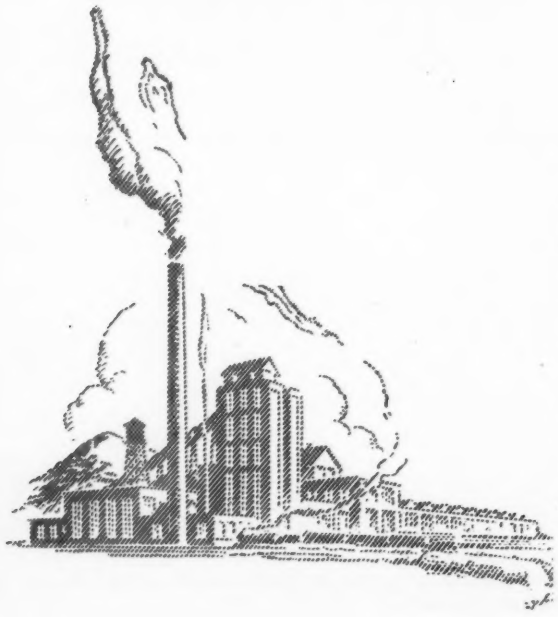


TIMBER



Left—Virgin Western Hemlock of the type used by the new Puget Sound Pulp & Timber Co. mill. Above—A cross section of one of these Hemlock logs with size illustrated by comparison to a silver dollar and ordinary pocket knife.



IN building its new 175-ton high grade bleached sulphite pulp mill at Everett, Washington, the Puget Sound Pulp & Timber Company has constantly kept foremost the idea of building quality into every part of the plant, firm in the belief that good products demand good tools. It has therefore given careful attention to both major and minor details in the design, construction and equipment of its mill, convinced that good design and modern equipment were prerequisites to painstaking operating practice in the production of the very highest qualities of sulphite wood pulp. In plant and product it has aimed to be satisfied with nothing inferior to the best.

This new $4,500,000 plant, completed during the latter part of June, 1930, and now operating at capacity, is not to be classed as something untried. Rather, it is the outgrowth of several years of experience in the manufacture on the Pacific Coast of America of sulphite pulp from waste wood of various classes and, in a more limited fashion, the use of forest wood in log or cordwood form.

SAWING

The Everett mill expresses a preference for circular saws in breaking down the logs into cants of large size. Greater cleanliness and less waste are claimed as advantages.

In fact, to the principal figures of the present company may be credited the pioneering of the use of waste wood on the Pacific Coast for wood pulp manufacture, the product of which was offered in world markets. Largely from that pioneer beginning a scant half dozen years ago the pulp industry has grown in rather phenomenal fashion on the Pacific Coast until today some 360,000 tons of sulphite pulp are manufactured annually for sale in markets almost wholly outside of the Pacific Coast area.

But more of these beginnings in later paragraphs. The immediate and main purpose is to acquaint the reader with this new mill, ranked as one of the most modern and finely appointed in the world. The ensuing description will follow the process thru the mill from the raw log to the finished pulp in the bale, pointing out enroute some of the more significant features of design and operation which are particularly pertinent in their bearing on the production of highest quality pulp.

Before embarking on this tour of the mill attention is directed to a number of the more outstanding features, all of which will be taken up in more detail in proper order in the succeeding narrative. It is well to note the exclusive use of logs, directly from the forest, a large percentage of which is the fine-pulping mountain Western Hemlock. One should also note the method of cutting up the logs into large cants, the chippers of special design, the careful attention to chip uniformity delivered to digesters, the provision for slow cooking and careful treatment of the fibres in cooking, the thoro system of washing and rewashing, screening and rescreening, riffling and reriffling, the modern bleach plant, the Swedish-built drying machines — unique on the Pacific Coast—the careful attention to atmospheric conditions in the pulp screening and drying room, the emphasis on quality operation and cleanliness thruout the plant.

Analysing the completed mill from the standpoint of design, equipment and method of scientific operation it is readily ascertained that the company first established its objective of making the highest possible quality of sulphite pulp and then chose the means to that end. As factors essential to that success it set down, (1) sound forest wood carefully prepared, (2) slow cooking, (3) double washing, riffling and screening, (4) the blending of its pulp batches, (5) the control and purification of air and water used in the manufacturing, and, (6) the application of scientific methods to the entire process.

Proceeding from this stand the company selected an engineer with a national reputation in pulp and paper mill design and one with some experience in Pacific Coast conditions, seeking to merge specialized engineering skill with hard-gained practical operating experience. Hardy S. Ferguson & Co. was awarded the contract to design and supervise the building of the mill. The work was carried on under the direction of J. H. McCarthy, resident engineer for Mr. Ferguson.

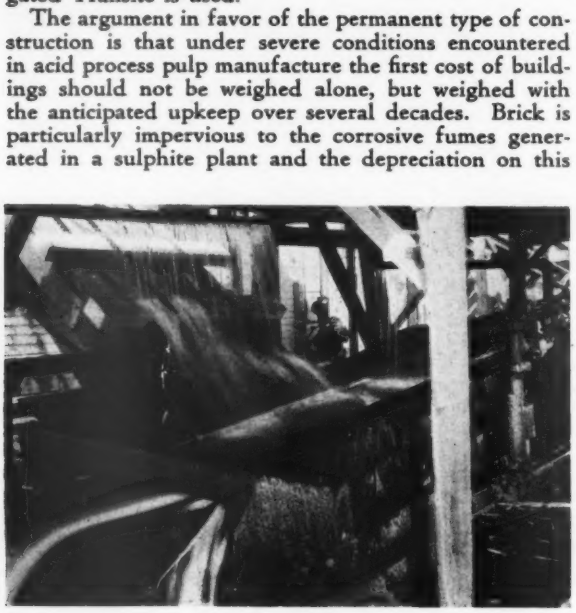
The mill site is situated on the Everett waterfront, with a deepwater dock capable of handling the largest ocean freighters. In point of transportation facilities the mill is particularly well blessed, as it has its own shipping terminal with rail connections on the dock which join a main line transcontinental railroad immediately in the rear of the site. The city of Everett includes many large lumber mills among its industries, and its central location on Puget Sound makes it advantageously situated to draw from the heavily timbered hills surrounding this great protected body of salt water.

To take best advantage of the site the mill buildings were arranged in the form of a "U" with sawmill and chipping plant forming one side, digester room in between, and screen room, bleach plant and machine room on the other side. The steam plant and auxiliary chemical buildings are located within the "U".

In design the buildings are substantial and permanent in character without excessive investment. The sawmill alone is heavy mill type wood construction, but all other buildings are steel and brick with reinforced concrete

used where deemed necessary. In some places, particularly where the walls are considered temporary in the light of contemplated future expansion, corrugated Transite is used.

The argument in favor of the permanent type of construction is that under severe conditions encountered in acid process pulp manufacture the first cost of buildings should not be weighed alone, but weighed with the anticipated upkeep over several decades. Brick is particularly impervious to the corrosive fumes generated in a sulphite plant and the depreciation on this type of construction ranks low in contrast with other materials.



Above—Large, clear cants being washed as they come from the saw mill to be carried on steel conveyors to the chippers (right), which are specially fitted with large spouts.

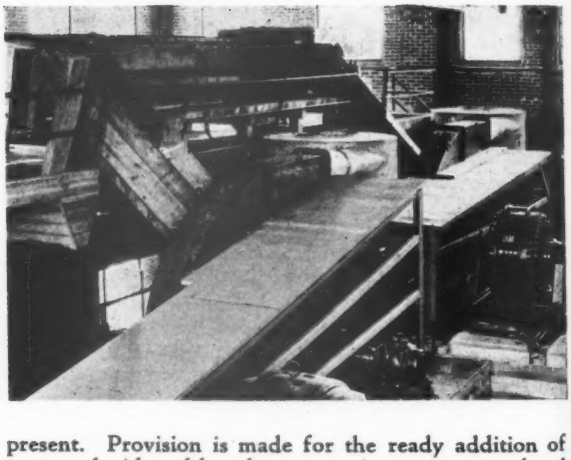
It would be well at this point to refer to the aerial photo of the mill shown on the cover to visualize the general arrangement of the several mill buildings before discussion is begun in detail.

Building on their experience with waste wood utilization the company has definitely adopted the theory that if high grade uniform pulp is to be produced the best run of logs from the forest is necessary. Further, it believes no particular economies are involved in the combination of sawing lumber and pulp wood on the same head rig in the sawmill. Stated otherwise, the company feels that it is an economical procedure to sort the logs in the water should the time ever arrive when the returns on Western Hemlock lumber would exceed the returns possible on converting prime logs into pulp. Should that day of high-priced Hemlock lumber arrive the company is then prepared to sort its logs in the pond and divert the select clears to its lumber mill at Clear Lake, which is modernized for efficient lumber production.

WOOD ROOM

THE pulp plant proper at Everett includes as an integral unit a specially designed sawmill which has as a specific and only function the breaking down of logs for pulp wood. It should be borne in mind, particularly by those unfamiliar with Pacific Coast forest conditions, that the run of logs available for mills on the West Coast in diameter range from 14 inches to more than 60 inches, and in length from 16 to 40 feet. Visualization of this point will permit a more ready conception of the operation of the cut-up sawmill.

The sawmill unit is what is known as a "two-side" mill, altho but one side has been constructed for the present. Provision is made for the ready addition of a second side, altho that move is not contemplated for some time. The exact time, in fact, rests upon an economic factor, that factor being the time when lumber will more nearly compete with pulp in the matter of producing the greatest revenue from the individual log. Meanwhile, the company is embarked on a program of making the best possible pulp under the best of conditions and it feels that too much attention can not be directed to the careful preparation of the wood.



The present break-down sawmill is fitted with a head rig having two 60-inch circular saws driven by a Westinghouse 500 H.P. synchronous motor, and a special high speed carriage with tapered blocks. The objective in this department is to make as few cuts in the log as possible, thus permitting uniform chipping and a minimum contribution to the saw kerf pile.

The carriage is a regular Eastern Pine carriage of Allis-Chalmers design. The argument for employing circular saws is that with their method of break-down the saw kerf is taken principally out of the sapwood; that the saws cut in a circle instead of straight down

as with a band saw, and thus depart from the tendency of the band saw to pull the bits of tannic bark into the wood.

It might be said at this point that these specks of bark have been one major source of annoyance with Pacific Coast pulp operators, the bark specks being of a nature that carried thru the cooking, washing, and bleaching processes to an aggravating degree. The company finds that the circular saws, with reference to bark speck elimination, have already demonstrated their value and they consider their use a factor of major importance. Another advantage claimed for the circular saws is that they permit sawing at higher speed since it is possible to use a greater carriage speed against them and there is not the objection in hitting rough spots and knots as there is with a band saw. Nor do the circular saws require an elaborate filing room as necessitated when band saws are employed.

All clean wood ready for the chippers is delivered at the further end of the sawmill to two flat Swedish steel conveyor belts which travel at a moderate incline up to the chippers. At the lower end of these conveyor belts, the company has installed warm water showers to wash off the surface dirt before chipping. The belts are housed thru their entire length to protect them from the collection of atmosphere dirt. Incidentally, this item of washing the raw pulp wood and protecting the conveyor belts from atmospheric dirt is only characteristic of the careful attention to detail thruout the mill to the end that a product of highest cleanliness may be produced.

Water for washing the wood comes from a special hot water well and is delivered by a pump giving it a high pressure shower which is effective in removing dust particles clinging to the wood. This wash water line is also run to the log slip for washing logs prior to sawing.

CHIPS

The Link-Belt tripper distributes the chips above the digesters and has a brush attachment to remove sawdust adhering to the rubber belt.

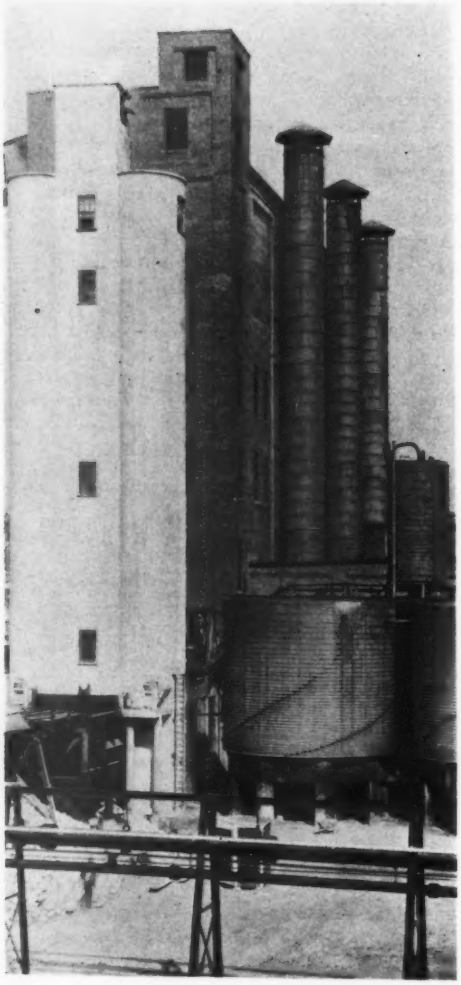
Insofar as possible, the sawmill breaks down the logs with a minimum of slabbing. The chippers have been specially fitted with large spouts which will accommodate a stick up to 20"x20" square, consequently, if the wood is clear and clean it is possible to send sticks of this maximum size to the chipping room. That portion of the log which does not emerge as clear stock directly from the circular saws passes under other equipment as required for further cleaning. A major item in this line is an edger supplied by the Sumner Iron Works, equipped with power shifters. The conveying equipment in the sawmill, designed and installed by the Hesse-Ersted Iron Works of Portland, is so laid out as to carry the wood to the main chipping mill conveyors as soon as the cleaning process has been completed.

All wood passes an automatic trimmer which is fitted with three discharge conveyors. Here the wood is automatically sorted without hand labor into three lengths. The wood ranging in length from two feet to four feet goes into the first drop behind the trimmer, and goes thru a special inspection and cleaning in which process defects are removed by barking or bolting. The clean side cut wood, ranging in thickness from 3 inches to 6 inches, is cut into 4-foot lengths and travels a separate route to the main chipping mill conveyor, at which point it is joined by all of the cleaned smaller wood which is delivered from the bolting or hand barking process.

The sawmill is of course entirely electrified. All of the motors were supplied by the Fairbanks Morse Company with the exception of synchronous motors, which are of Westinghouse manufacture.

THE chipping mill houses four chippers and three chip screens. It is a building of permanent type construction, built essentially of steel and brick. There are in all four chippers, two of which are 110 inches in diameter and the other two of which are 84 inches in diameter. All are the heavy duty K.M.W. type manufactured by the Karlstad-Mekaniska Werkstad of Karlstad, Sweden, and sold thru the Seattle agents, the G. D. Jenssen Company. Each chipper is driven by an individual electric motor fitted with short centered rope drives. Each chipper is mounted on its own concrete base, which rests on its own piling foundation and is separated by a few inches from the building proper, thereby making impossible the transfer of vibration to the building itself. The chip screens are similarly mounted on separate concrete bases.

Each Sandvik steel belt conveyor is 46 inches in width. No. 1 line handles only the large, clear wood in 8-foot lengths and including squares from 8 to 12 inches in thickness up to the maximum of 20 inches by 20 inches previously mentioned. No. 1 conveyor line runs directly to the two large 110-inch chippers. These large pieces of wood are handled with surprising easiness from the steel belts into the chipper spouts. They



ACID

The Jenssen acid towers are standard design with a labor serving skip hoist. Note the three types of construction shown here, the brick digester building, concrete towers, and wood tanks and stacks.

slide easily over the smooth steel surface, and by a slight up-ending the piece is easily plunged by one man into the conveyor spout. No. 2 conveyor line carries all of the smaller wood—which pieces will probably average four inches in thickness and two to four feet in length—to the two 84-inch chippers, both of which are equipped with automatic feeds. The steel belting was supplied by the Seattle office of the Bodinson Manufacturing Co.

An interesting and highly important feature of all four chippers is the special design of the spout. The spouts are rectangular in shape—those on the larger chippers having a maximum opening 22 inches by 22 inches square—and are provided with bed plates on the bottom as well as on the sides, thus preventing the wearing of the spout lining. Further, the angle of the spout with relation to the chipper blade is such that the pieces lie flat and chip evenly down to the very end without turning the last bit of wood over or pulling it thru entirely to make an unsatisfactory chip.

From all four chippers the chips are drawn off in a cyclone constructed of sheet iron and carried by a central belt to three latest type Hesse-Ersted chip screens. Following thru the major premise that high-grade finished products depend upon a high grade raw material carefully prepared, the screening operation puts on the final touch of breaking down the logs into chips finally accepted for the digester.

From the sawmill all wood refuse, including bark, saw dust and rejected wood passes thru two double disc hogs to be converted into fuel. The mill has no waste burner of any kind, and every part of the log not utilized for chips goes into fuel. The final residue taken out by the chip screens, which is essentially sawdust, travels on a separate rubber conveyor belt from the chip screens to join at this point the hogged fuel conveyor coming from the sawmill proper.

The acid plant is the standard two tower system installed in the sulphite pulp mills everywhere by G. D. Jenssen Co., but the towers have an added feature new to the Pacific Coast, consisting of a skip hoist for handling lime rock to the towers which requires no attendant at the discharge end of the lift.

Sulphur, limestone, and lime are handled over the dock on an elevated railroad directly to the several storage places provided for these materials. The lime rock is dumped from the trestle immediately in front of the acid tower elevators, necessitating as an only labor operation the loading of the elevator.

Advantageous labor serving facilities have been incorporated in the sulphur storage building. Sulphur from shipside is handled on the elevated tram directly into the concrete storage building, there to be dumped by gravity. The storage floor slants in from two sides to the center, converging on a small concrete tunnel in which a conveyor has been installed. A series of steel hopper doors on each side of the tunnel permits opening at any point in the bin and automatically discharging sulphur to the conveyor when drawing supplies for the two Glens Falls burners.

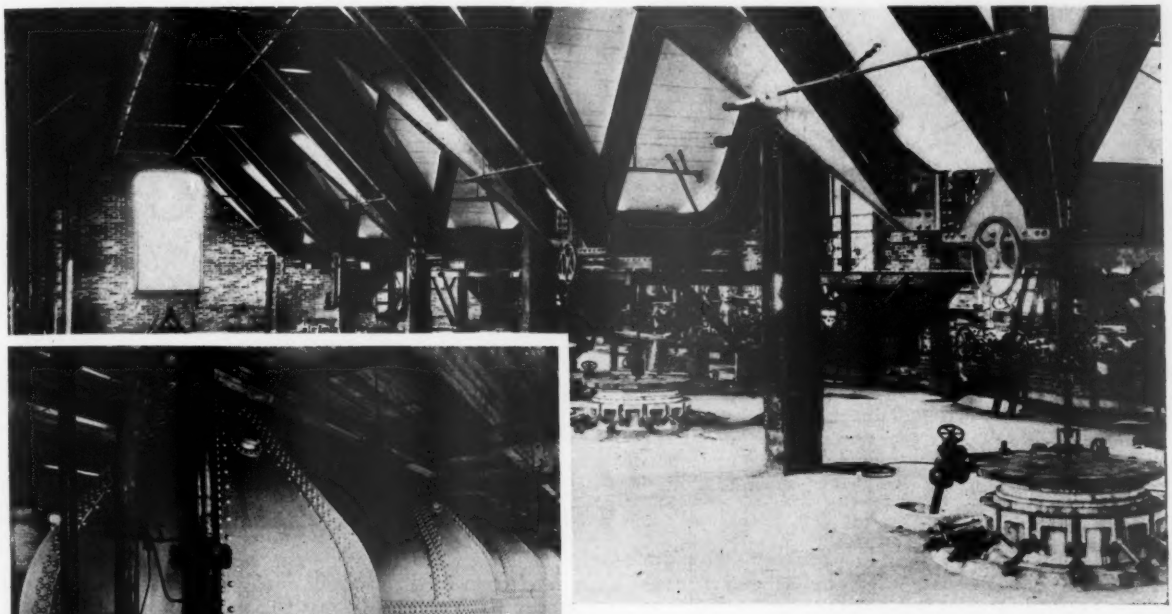
The acid storage system consists of four large wooden tanks surmounted by one smaller wooden tank. Into one of these larger tanks an intake line distributes at four points and the acid strength is built up. The other three tanks are for storage only. Relief gases are cooled on three bee hive lead coil units.

RUNNING from the chipping mill at ground level to the top of the digester mill building, is a long rubber belt conveyor, completely enclosed. The hogged fuel rubber belt conveyor travels parallel to the chip conveyor for approximately one fourth the distance before being diverted at right angles to the boiler house.

The digester building is the tallest structure in the plant, and has been built exceptionally high to provide ample chip storage above the digesters sufficient for three charges for each digester. A movable Link-Belt tripper in the conveyor belt line over the digester storage, permits the discharge of chips at any point in the storage bin. A further advantage attending the use of this automatic tripper instead of baffle boards for scraping off the chips, is that with a special belt brush all of the small saw dust clinging to the belt is brushed off and collected for disposal as fuel. This tripper arrangement eliminates a frequent source of trouble wherein the saw dust is all carried to the end of the belt to collect in one part of the chip storage bin and thus charge the end digester with an occasional slug of saw dust to the consequent detriment of the pulp quality.

All chip storage is above the digester; a feature somewhat in contrast to the more or less common use of ground storage. The storage bin is drawn out into five separate suspended hopper bottoms, each of which slants in four directions toward the spout. This feature, together with the uniform character of the chips, assures a positive flow of chips and eliminates entirely the possibility of dead pockets of chips piling up in corners of the bins. Thus the digesters are always getting live chips which have not had an opportunity to dry out or heat up in a dead pile.

From the operating standpoint, the suspended type of chip hoppers affords a relatively high ceiling on the cook floor of the digester house, and permits a high up cross ventilation in this room which contributes largely to the comfort of the operators.



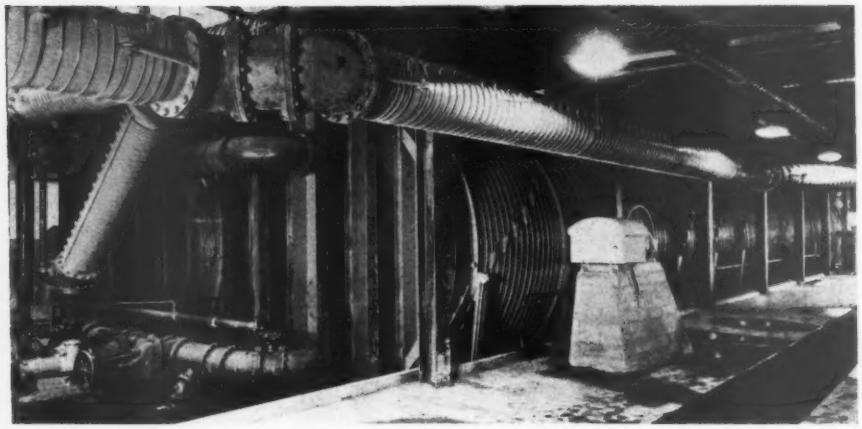
Suspended type chip hoppers facilitate digester loading and permit good natural ventilation on the cook floor. Below—A good view of the digesters on the level below.

COOKING

The digester building is of course in keeping with the type of construction employed in the rest of the mill. The frame work is all structural steel, the walls are brick and the floors are concrete with the exception of the main floor where considerable tile is used to withstand the action of acid drainage.

The Puget Sound Machinery Depot constructed and installed the five digesters. These have a yield capacity of 18 tons each, are 17 feet in diameter by 56 feet high, and are constructed tall and narrow so as to permit good circulation in the cubic area provided. Provision is made for three different methods of cooking, namely, direct or quick cooking, slow cooking with washout of the stock, and for easy conversion to cooking by the Mitscherlich system should the conditions demand it.

An interesting feature of the digesters, again in



Two 60-foot wooden blend tanks serve to maintain a uniform product. Note the extensive use of wood stave pipe.

BLENDING

keeping with the company's aim at quality, is the unusually large size of the digester blow valves and lines. To eliminate severe treatment of the fibre frequently attending the rapid changes in pressure accompanying the normal blowing of the digesters, the digesters at the Puget Sound Pulp & Timber Company mill have been fitted with drainer pipes at a point about three-quarters of the way down from the top, so as to permit the easy draining off of the liquor, prior to dumping the digester.

WITH a large part of the cooking liquor drained off thru this pipe, the digesters can be quickly dumped thru the large 14-inch special blow valves and the 18-inch blow lines. In contrast to the customary goose neck blow line, here the 18-inch blow lines are installed so as to give a slight down pitch from the bottom of the digester to the blow pit. Thus the entire contents of the digester may be dumped rapidly by gravity and washing. The blow valves were manufactured in Seattle by the Doran Company, and the large blow lines and all heavy casting work in the plant were also fabricated in Seattle by the Olympic Foundry Company.

The blow pits are large, rectangular in shape, built of concrete, lined with Douglas Fir and paved at the bottom with special acid-resisting Western tile which supports stringers for special drainer tile designed for length of life and maximum quick flow and washing efficiency. The blow pits are built with one end adjacent to the wall of the digester building and are fitted with washout doors opening into the digester room near the blow lines. Wash water is played on the brown stock under pressure thru special rubber nozzles.

Fumes from the blow pits are carried to the outer air thru wooden vomit stacks which carry to the height of the digester building and are securely anchored to that structure by iron rings placed on short centers thruout the length of the stack. At the base of these stacks special bronze spray nozzles are installed to wash the fumes enroute up the stack.

The company gives unusual attention to the matter of washing the brown stock before sending it to the rifflers and screens. Located immediately above the five blow pits are three white water tanks constructed of wood staves. White water for these tanks comes from the washers in the screen building. The five blow pits connect to a header which conducts the brown pulp stock to two Allis-Chalmers stock pumps. These have a flexible hook up which permits diversion of the stock to temporary storage or to the third level of the wash room where the stock goes into a head box before being processed in five knotters. The temporary storage tank referred to is on the lower level and is fitted with a Hayton circulating system for maintaining agitation.

From the knotters, the knots are diverted to two Biffar refiners where they are worked up into screenings along with the rejects drawn off of the flat plate screens. From the knotters the good stock is pumped to a battery of six IMPCO washers, 42 inches by 120 inches. Attention is directed here to an interesting feature in the mill, in that a double washing of the stock is obtained before processing commences.

Brown stock from the washers flows to the next lower level to be refined in four breakers or separators which serve to comb the fibre bundles apart and insure a maximum freeness of the stock. The stock enters these separators at 7% consistency. This installation too is unique in that it is the first of its kind on the American continent, altho the process is in general usage in the Scandinavian pulp industry.

From the K.M.W. separators, the stock flows by gravity to two large blending tanks built in the shape of large and long wooden casks. Installation of these blending tanks is also a departure from normal practice and, due to their large capacity, serve to blend the various batches produced in the digesters. This is considered by the company an important factor in maintaining a pulp uniformity where a batch cooking system is used.

While the stock is in these tanks agitation is maintained by suitable propellor type equipment manufactured by the Hesse-Ersted Iron Works.

From these blending tanks the stock is again pumped to the third level, where the brown stock is passed over twelve riffler channels 8 feet wide and 60 feet long, fitted with long nap felts at the bottom to collect the dirt particles. The large capacity of the rifflers is designed to permit ample time for this part of the refining process.

SELECTED stock from the rifflers flows by gravity to the floor immediately below to be refined over a series of 52 14-plate Valley type flat screens. The slots in the screens are of different size, but no screen plates in the entire plant have a cut over .008, thus insuring a maximum cleanliness. Interesting in this department of the mill is that the screens are designed to carry a free flow thruout their entire length and that no dry screening is permitted. No showers are employed on the screens because of the possibility of driving dirt thru the screen slots with the force of the water.

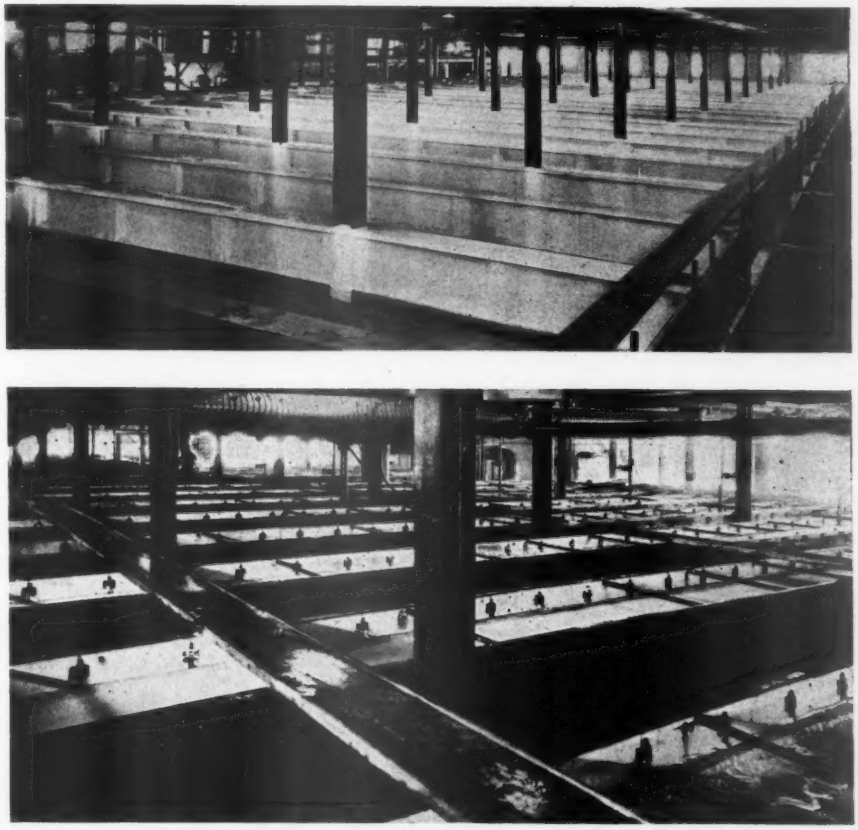
Essentially, the operation of brown stock screening carries the first flow from rifflers over approximately half of the total screening surface. The choice stock is drawn off in this first flow and the second choice is pumped back to the head end again and rescreened over a smaller number of separate rows of brown stock screens. On brown stock this selective stage process is carried out in four movements.

Screened stock flows into brown stock storage chests after the consistency has been raised on four IMPCO thickeners.

To maintain a flow in the main stock and many auxiliary lines in the mill requires a goodly number and variety of pumps. A great many of these jobs, in the Puget Sound Pulp & Timber Company's new mill, are being performed by pumps fabricated on the Pacific Coast by the Bingham Pump Company of Portland. There are a score or more of major Bingham installations in the mill handling stock up to 4 per cent, fresh and white water, and lime solution. Each pump has been designed and factory-tested for the load it is intended to handle, the mill management viewing the pump as an important link in the production process with dependability a major factor.

From screened brown stock storage the pulp is pumped to the first stage bleachers. The bleach plant is the very latest improved Wolf two-stage bleaching system, in which the first stage bleaching is carried on at low density and the second stage bleaching at high density, that is, at about 18% consistency. The complete bleaching installation was designed and installed by the Pulp Bleaching Corporation of New York.

SCREENING



Rifflers (above) and flat screens (below) of unusually large capacity permit an exceptionally thoro washing and refining of the pulp stock.

Several advantages are claimed for the two-stage system which embodies first bleaching at low consistency, that is, at about 3½%. The stock needs to be brought to high consistency but once; more uniform action is secured by introducing bleach the first time at low consistency as the greater amount of water retards the action of the bleach liquor; reduction in total bleaching time; high consistency and mechanical movement of the second stage system effects a good exchange of bleach liquor and fibre and achieves thoro penetra-

tion of any shives or fibre bundles remaining, to the end that no such unbleached fibre can remain in the final product; bleaching is accomplished without the application of external heat in both stages

Insuring cleanliness for this department of the mill the company has lined the bleaching vats of both stages and the screw conveyor trough with white tile to prevent any possible pickup of foreign matter or metallic elements that would be objectionable in the highest quality pulp.

A Ross bleach room exhaust system provides proper ventilation in this department.

An interesting deviation is found in the bleach liquor plant which comprises a complete installation housed in a building of its own, where the lime is slaked in water in amounts sufficient for a week's run. After making up the bleach liquor by chlorination of lime paste, the supply is stored in large tanks, and piped to the bleach room in rubber lined steel pipe which resists all corrosion. A small centrifugal pump, installed adjacent to the bleach liquor storage tanks, is operated by remote control from the bleach room.

To insure refinement of the bleached stock, the pulp is pumped, following the bleaching process, over bleach washers and then to a mixing box where the consistency is lowered prior to passing over a second set of rifflers. From the bleached stock rifflers the process is much the same as in the brown stock operation, the stock flowing from the rifflers to a battery of 32 14-plate flat screens for a second and final screening before being washed and thickened in IMPCO units and dumped into the machine chests. As with the brown stock, the bleached stock screens are operated in series which call for a fast flow operation and no dry screens.

The Wolf two-stage bleach system of latest design is used. This view shows the second, or high density, stage.

ALTHO Sweden, which has definitely established a world reputation for quality pulp manufacture, has been the source of many ideas for the new mill of the Puget Sound Pulp & Timber Company, in no department of the mill is this Swedish influence carried out to greater extent than in the machine room where the pulp is dried. Here, in a large machine room, are two K.M.W. pulp drying machines, fabricated in Sweden by Karlstad Mekaniska Werkstad for their North American agents, the Paper Machinery Limited of Montreal, and sold thru the G. D. Jenssen Company's Seattle office.

The two machines are identical in construction with the exception of reversal of drive and front sides. Each machine is designed to dry 100 tons of pulp per 24 hours, using not over 6 lb. steam pressure in the drying cylinders.

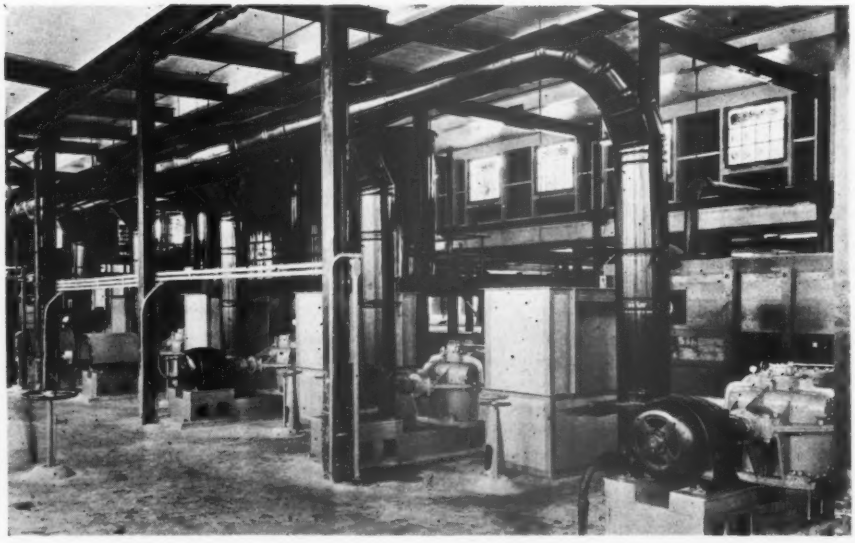
Essentially the two machines are comparable to standard paper machines in current use with the exception that they have pressure rollers to carry the pulp sheet in greater contact with the drying cylinders, thus permitting the drying to be accomplished on fewer cylinders.

The pulp sheet is formed on a regular fourdrinier having a wire 154 inches wide and 65 feet long, operating at a designed maximum speed of 120 feet per minute and having a working width of 144 inches.

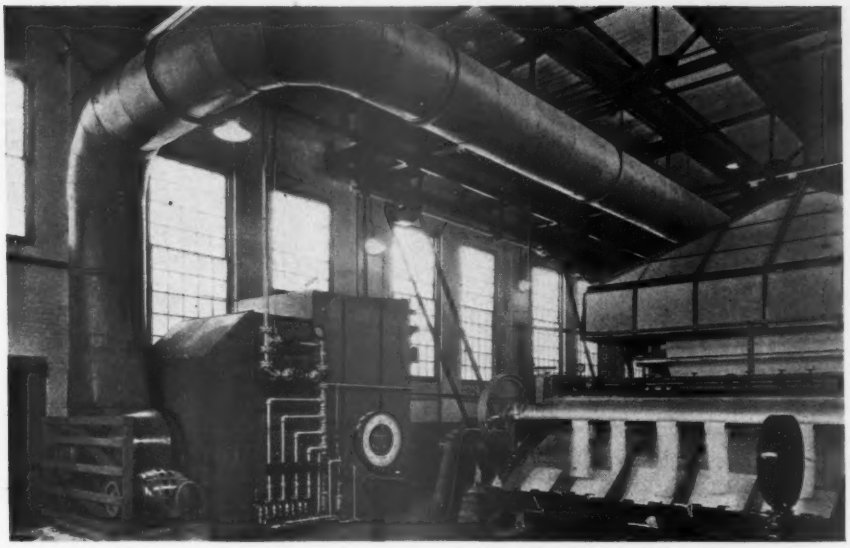
Of particular interest on the fourdrinier end of the machine are the suction boxes. One of these is of the ordinary flat type with wood face, while the other two, as far as the Pacific Coast is concerned, are unique. These suction boxes are of the patent rotary Kamyr type, connected to suction at both ends and designed to work under vacuum of 10 to 12 inches of mercury. Altho there are a few installations of this type of rotary suction box in Eastern Canada, it is believed that the installation at the Everett mill is the first in the United States.

Each fourdrinier has one couch type press with upper roll 27½ inches in diameter and lower rubber covered roll, 35½ inches in diameter. The two other wet presses have rolls 29½ inches in diameter, the upper one being polished and the lower one being rubber covered.

BLEACHING



DRYING

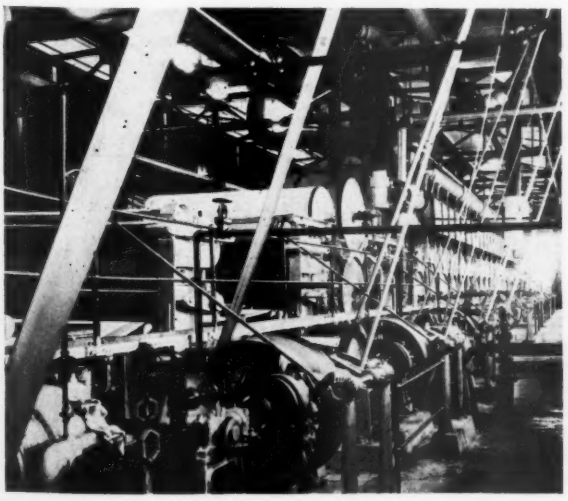


Air entering the machine room is filtered and heated before distribution in Ross vapor absorption systems. Below—a glimpse of the back side of one drying machine.

Built into the wet end of the machine at this point are two Pedersen pre-drying cylinders of white cast iron, surface polished, four feet in diameter. The function of these pre-drying cylinders is to warm up the sheet to reduce the viscosity of the water content prior to taking a final squeeze in a third press, following which the pulp is delivered to the cylinders of the machine at 48% air dry. This last press is of exceptionally heavy construction, Kamyr type, and has rolls 31½ inches in diameter, the lower of which is rubber covered.

The main body of the machine consists of 32 main dryers, the cylinders being 5 feet in diameter by 150 inches wide. As mentioned above, there are 32 pressing rolls, 8 inches in diameter, which serve to hold the pulp sheet in a 320° arc of contact with each drying cylinder, thereby effecting a high drying capacity per cylinder. The method is in common use in the Scandinavian pulp-producing countries where the end product is essentially pulp for export, altho the method is not in wide use on the American continent.

Explaining its purpose in using two machines of such large drying capacity for the manufacture of 175 tons of pulp daily, the company points out the possibility of forming a relatively thin sheet of pulp on the wire and the ease of drying with a minimum temperature, thus insuring against loss in fibre strength in the drying process.



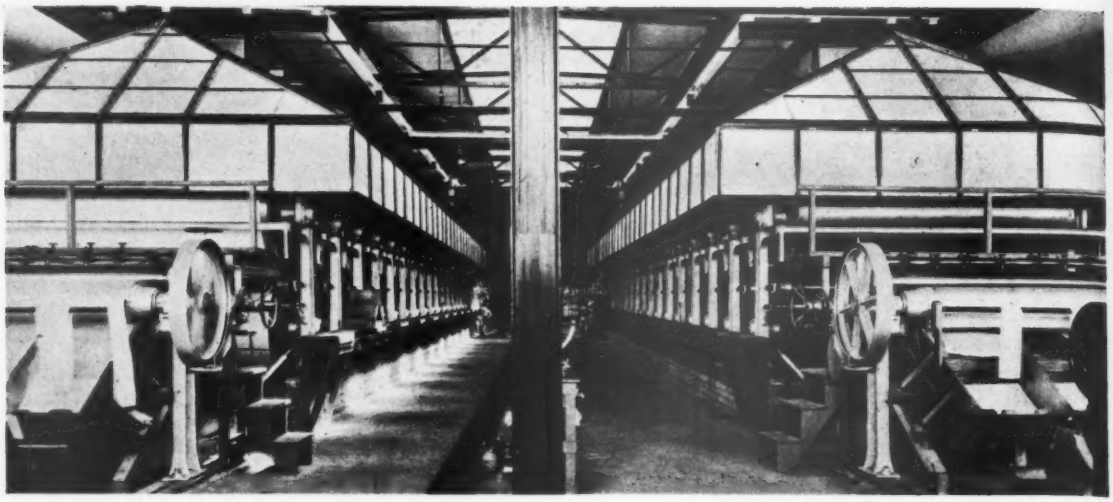
In each corner of the wet end of the machine room there is a small mezzanine on which are mounted two 250 H.P. Sturtevant steam turbines, each driving a machine thru a line shaft hook up. The turbine exhaust is used for drying steam in the cylinders. Steam and condensate piping on the machine is handled with a "System Sylwan".

AS in every other part of the mill, the emphasis on cleanliness is very pronounced in the machine room. The room is kept clean, the operators are all dressed in white clothing, the pulp is carefully handled, and all air entering the room is washed and conditioned.

Having jealously guarded against dirt in all stages of the pulping process up to this point the Puget Sound mill increases its vigilance in the final drying stages of manufacture. To this end it operates the machine room with closed doors and windows and draws the volume of air necessary for circulation thru two vapor absorption systems designed and installed by the J. O. Ross Engineering Corporation.

In operation these systems draw fresh air from the outdoors and pass it thru a Reed automatic multi-panel filter. The Reed filter screen consists of a series of overlapping screen segments which are specially treated with Bakelite and other materials to give greater surface and adhesive qualities. The screen travels across the air intake after dipping into a special oil bath, catches the atmospheric dirt particles, and delivers clean air to the machine. The cleaning efficiency runs from 97%

THE MACHINES



The mill has two KMW pulp machines designed to form a thin sheet and having ample capacity to dry 175 tons of pulp daily at low temperature.

to 98%, which means that of all atmospheric foreign matter entering the intake with the outdoor air, only 2% to 3% manages to escape. The bath of oil serves the double purpose of washing off the accumulated dirt particles and of coating the air filter screen with a continuously fresh bath of oil.

The filtered air is then heated to a predetermined temperature by passing over steam coils and warm dry air is discharged by means of a Sturtevant fan to a main duct leading to the pulp drying machine. From this main duct the warm dry air is distributed into the pockets between the drying cylinders thru Ross patented vapor absorption nozzles. The effect of this distribution is to supply a steady sheet of warm dry air to the pulp sheet where the drying is taking place, thereby increasing evaporation. With the system, drying is accomplished at greater efficiency and at lower temperatures, an item important in maintaining pulp quality. The action may be compared to the contrast in drying witnessed on the family clothes line on a warm sunshiny day with the wind blowing as against the much slower drying on a damp still day.

Each machine is fitted with a Ross transite hood for collecting and discharging the exhaust vapors to the atmosphere. The hoods are constructed of Johns-Manville transite panels and standard structural steel, a construction entirely fireproof.

On the mezzanine level above the machines four B. F. Sturtevant blowers exhaust the vapors thru the machine hood to the outdoors.

The Ross vapor absorption system also distributes hot, dry, clean air to the wet end of the machine room.

Coming from the machines the pulp is cut into sheets 30 inches square, baled in packages of 400 lbs. each, wrapped in a sulphite wrapper, compressed under three hydraulic balers, and securely tied. From the machines to the further side of the balers the pulp is handled on roller conveyors into the pulp warehouse. Incidentally, it should be remarked here that the pulp warehouse presently being used is actually a second machine room which will permit the duplication of machine equipment at any time according to the dictates of business. In the pulp warehouse an overhead Monorail system is used to handle the pulp in and out of storage.

In line with its acceptance of the developments of modern science and engineering to the end that a product of highest quality may be produced the Puget Sound Pulp & Timber Company has established a technical department which operates as a distinct unit. Physically the department is an eight-room laboratory housed in its own building located so as to be conveniently accessible to all parts of the mill.

The technical laboratory may be likened to an information bureau or an instrument board to which the superintendents and operatives may refer in keeping a scientific eye on the production departments.

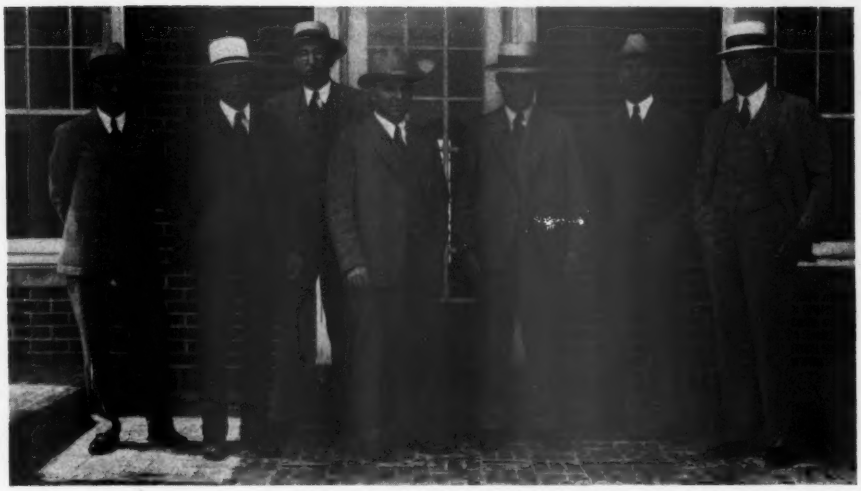
The main function of the laboratory is to set up standards and to secure an accurate and impartial record covering quality and tonnage. The so-called "process" control is left entirely to the mill operatives who carry out routine tests right in the mill and according to standard methods worked out by the technical staff. These standards conform to those approved by TAPPI.

The technical personnel consists of a chief chemist, two assistant chemists, statistican, pulp testers, bleach testers, inspectors and outside consultants.

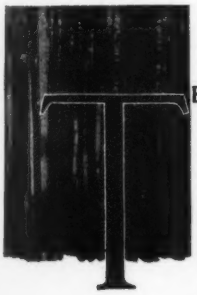
Included in the principal items of equipment in the laboratory are two Valley screens; a Williams pulp disintegrator; sheet machine, sheet press and sheet dryer; sheet scale and Sargent oven; automatic Mullen tester; tear tester; freeness tester; centrifuge; two Braun moisture ovens; standard color discs; Roc-Newhall chlorine number apparatus; constant humidity apparatus; and the usual paraphernalia of the chemist's laboratory.

The department was organized under the personal supervision of Frederic C. Clark, vice-president of Skinner, Sherman Inc., Boston, assisted by Charles A. Newhall, consulting chemist, Seattle.

ORGANIZATION



Some of the executives of the Puget Sound Pulp & Timber Company. Left to right: Peter G. Schmidt, director; R. H. Miller, director; P. F. Knight, first vice president; Ossian Anderson, president; U. M. Dickey, director; H. R. Lawton, secretary, and W. N. Winter, director.



HE present Puget Sound Pulp & Timber Company came into being only as recently as the spring of 1929, but back of its apparent youth is one of the most interesting bits of history in the development of the pulp and paper industry on the Pacific Coast of America. Permission is asked to delve for a few paragraphes into the past that the present may be better understood.

To those not familiar with the Northwest Pacific Coast area it is well to suggest at this point a reference to geography. Stringing along the Coast from Southeastern Alaska to about the California-Oregon boundary line is a vast timber empire known as the Douglas Fir region. It extends from the Pacific Ocean to the Cascade mountains and varies in width from a narrow strip to more than one hundred miles wide. Forestry experts describe the region as perhaps the richest timber area in the world. The moist temperate winds from the Pacific Ocean are particularly conducive to timber growing. The trees are tall and straight, clear, and as "thick as hair on a dog's back."

If one must get into statistics let it be said that it is not at all uncommon to cut 200 cords of pulp wood from a single acre of virgin growth.

Into this great timber region the lumber barons began to trickle in the latter part of the nineteenth century as the pine stands in the Atlantic and Middle West forests of the United States thinned out. But these early men were only after lumber. They encountered here a new tree, the Douglas Fir, rated as one of the most commercially valuable of all trees for lumber.

The stands of Douglas Fir were enormous, both in density and in size of the individual trees, but they were not pure. A companion tree, known as Western Hemlock, a specie quite distinct from the Hemlock common to the Eastern part of the continent, was always found intermixed with Douglas Fir. The lumbermen regarded Western Hemlock as a weed tree at first, and only in recent years has this forest "orphan" come to be appreciated.

The vast and apparently inexhaustible Pacific Coast forests naturally lead to excessive wastage of wood along with exploitation. So great were these forests that one early explorer, feeling his way into Puget Sound many many years ago in a sailing vessel, noted in his official report that "here were masts enough for all the ships in the world for all time."

This great waste of wood extended in two principal directions, first in the slaughter of small trees, a large part of which were Western Hemlock, in the high lead logging operations peculiar to the Pacific Coast, and in the log-butchering in the sawmills which largely thru courtesy was termed lumber manufacturing. The wood prodigality in the Douglas Fir region was solely due to the superabundance of timber. The Pacific Coast was "wood poor" thru this very abundance.

A recent painstaking study conducted by the U. S. Forest Service showed that some 6,000,000 cords of sound wood of pulpwood size or larger were wasted annually in the logging operations of the Douglas Fir region in the states of Washington and Oregon. This is an amount considerably in excess of the total annual

OSSIAN ANDERSON
President
PUGET SOUND
PULP and TIMBER
COMPANY

pulpwood cut in the entire United States. No figures are available on the amount of good pulpwood wasted in the production of lumber from logs, but an idea of the enormity of this waste may be had in the realization that in the past four years chipping plants have been installed in connection with a dozen or more Pacific Coast sawmills for salvaging lumber waste and converting it into pulp chips. Thru this new method of salvage some 425,000 cords of pulpwood are being reclaimed annually from what was previously going into smoke and cinders in expensive refuse burners.

Pulp and paper manufacture on the Pacific Coast of America is not exactly new. It dates well back into the nineteenth century, but it has, until only the last half dozen years, been almost strictly a local enterprise supplying principally the tonnage grades such as news print and wrapping for Pacific Coast consumption essentially. These past half dozen years have written a new and important chapter in the industry. The Coast is now already a major source of supply, particularly for sulphite pulps, for mills in the Eastern part of the United States which find their forests dwindling and wood costs rising.

Apparently we have strayed from our story, but, returning now, it will be seen that the detour was justifiable.

In this abundance of wood on the Pacific Coast and the increasing wood pulp demands of other regions arose an economic possibility for bringing supply and demand together. Visualizing this situation, the present president of the Puget Sound Pulp & Timber Company, Ossian Anderson, embarked on the problem with the conviction that Western woods could be converted into pulp for shipment to outside markets.

With some associates Mr. Anderson founded this Western pulp-for-sale industry in a very modest way by organizing the Fidalgo Pulp Manufacturing Company at Anacortes, Washington, in 1924. A small 20-ton one-digester mill was constructed to utilize a supply of waste wood from the nearby sawmill and wooden box factory of the Morrison Mill Company. There followed an era of trial and tribulation liberally injected with persistence and in 1925 the Fidalgo mill began production. It operated 54 days in that year and produced a total of 859 tons of wood pulp.

But the cardinal idea that Western wood could be converted into wood pulp and sold in world markets had been established. The success of the first venture led the same interests to establish a second company, the San Juan Pulp Manufacturing Company, and a second pulp mill was constructed at Bellingham, Washington, also to operate on sawmill waste.

Both of these mills continued to operate steadily and unbleached sulphite pulp began to flow out to the Eastern part of the continent and to world markets. Mr. Anderson was president of both companies. Both the Bellingham and the Anacortes plants have been improved and expanded since first built and today produce between them a total of 150 tons of unbleached sulphite pulp daily.

The experience acquired with these two mills led Mr. Anderson to the conviction that the highest grades of pulp could not be produced from sawmill wastes. Impressed with the growing demand for pulp in the paper mill centers in other parts of the world, together with the recognition that the highest grades of pulp could be produced from Pacific Coast woods, Mr. Anderson and associates proceeded to launch a new company, a fundamental purpose of which was to build a new pulp mill as well designed, constructed, and equipped as modern engineering science could dictate. That mill, now completed and in operation at Everett, Washington, will permit an estimated production of pulp by the Puget Sound Pulp & Timber Company in 1931 of 105,000 tons of unbleached and bleached sulphite. The following table shows the company's growth and gives an indication of the rise in importance of the Pacific Coast area as a factor in world supply:

SULPHITE PULP PRODUCTION—UNBLEACHED AND BLEACHED

By Mills Comprising Present Puget Sound Pulp & Timber Company

	Year	Days Operated	Tons Produced
	1925	54	859
	1926	360	7,904
	1927	608	19,792
	1928	629	29,220
	1929	644	40,506
(5 Mo.)	1930	276	20,724
(Estimate)	1930	800	65,000
(Estimate)	1931	960	105,000

The Puget Sound Pulp & Timber Company was organized in March, 1929. Into it went the two existing pulp mills of the Fidalgo and San Juan companies, to become the Anacortes and Bellingham Divisions, respectively, of the new organization. This provided the new company immediately with two operating units.

OPERATION

Here are the men in charge of production. Left to right —G. J. Armbruster, superintendent; George A. Gladding, night superintendent; C. N. Brown, sawmill superintendent; James P. V. Fagan, first assistant superintendent, and John M. Carlson, night superintendent.

The fundamental idea in back of the new company was to provide a structure which could control its operations from the stump to the finished pulp. Therefore, the new company brought into its fold timberlands lying in the Stillaguamish and Skagit River watersheds, two railroads tapping these territories and comprising a total of approximately 100 miles of rail, a sawmill at Clear Lake, Washington, and two nearby lime rock quarries.

In the Pacific Coast area logging conditions are different. The logs must come out principally by railroad and, as the country is rugged, the routes of the railroads are predetermined by the topography. The two railroads included in the new company's properties command some watersheds heavily clad with Western Hemlock and provide two exceptionally short hauls to tidewater. One of these railroads extends from Monte Cristo, somewhat over 50 miles, to Lake Stevens, a few miles back of Everett. This railroad is a common carrier, wholly-owned by the Puget Sound Pulp & Timber Company. The pulp company is constructing a private railroad to join the Lake Stevens terminal with tide water.

The other railroad extends from tide water at Mount Vernon up the Skagit River valley to the vicinity of Concrete. The company is now logging in this area.

Situated on this second railroad is the company's Clear Lake Division sawmill. This mill during the past year has been thoroly modernized and has now been producing lumber for some months. The set up here permits a diversion of the Douglas Fir and more select logs for lumber at the Clear Lake mill and the dumping of pulpwood logs at Mount Vernon for disposition at any one of the three pulp mills.

Thus, today, from an idea born in 1924, that Pacific Coast pulp could compete in the world markets, has emerged a company operating three pulp mills, a sawmill, two railroads, two limerock quarries and having total assets of approximately $13,500,000. Back of the company's properties stand large timber reserves held by the U. S. Forest Service on the slopes of the Cascades, which form a potential pulpwood reservoir on which the company is in a position to bid with advantage. In fact, the company has already purchased one block of 510 million feet of timber in the Stillaguamish watershed of these federal reserves.

Particularly interesting is the fact that the Puget Sound Pulp & Timber Company has been built up entirely with Pacific Coast men and with Pacific Coast money. In fact, even finer lines may be drawn. The company has chosen, practically without exception, its full executive staff and directorate from the Puget Sound area, that rich timber empire extensively interlaced with the deep navigable waters of Puget Sound, from which the company takes its name. Appreciating these factors, it is sensed that the name selected, the Puget Sound Pulp & Timber Company, is more than appropriate.

The officers of the company, in addition to Mr. Anderson, are P. F. Knight, first vice-president; William Morrison, second vice-president; H. R. Lawton, secretary; Neil Sexton, treasurer; and C. E. Ridgeway, assistant secretary.

President Anderson, in addition to his experience in the field of pulp manufacture has long been identified

The Puget Sound company maintains a well appointed laboratory and technical staff and conducts its manufacturing under scientific standards.

with both the lumber manufacturing and the shipping business. Mr. Knight is head of the Mutual Lumber Company, Bucoda, Washington, and is directly in charge of the Puget Sound company's logging and lumber manufacturing activities. Mr. Morrison is managing director of the Morrison Lumber Company mills at Anacortes, Bellingham and Blaine, Washington. He has been associated with Mr. Anderson for a number of years and his lumber mills have supplied waste for the Fidalgo and San Juan mills—now Anacortes and Bellingham divisions of the Puget Sound Pulp & Timber Company—from the start of these operations. Mr. Lawton is a financial man, being vice-president of the well known bond house of Peirce, Fair & Co.

There are in all eleven men on the company's directorate. In addition to the above are U. M. Dickey, chairman, active head of the Consolidated Dairy Products Company, an extensive Pacific Coast organization; R. H. Miller, director of the National Bank of Commerce, Seattle, and former head of the Mutual Paper Corporation, Seattle; W. N. Winter, president of the West Coast Telephone Company; H. M. Robbins, president of the Clarke-Nickerson Lumber Company, which mill adjoins the new Everett pulp mill; O. M. Green, president of the Olympia National Bank, Olympia; Peter G. Schmidt, active head of an extensive group of hotels in Western Washington; and H. W. Bunker, president of the Coos Bay Lumber Company, Marshfield, Oregon.

STEAM

IN meeting the necessary auxiliary steam and power requirements for its 175-ton pulp mill the Puget Sound Pulp & Timber Company has incorporated some departures in practice that are interesting. No electric power is generated on the site, but the company has an ample and dependable supply thru a special substation installed by the Puget Sound Power & Light Company, public utility which serves the greater part of Western Washington.

The steam plant is housed in a modern brick and steel building of its own. Hogged waste wood is of course the principal fuel in view of the several sources of supply available, namely (1) from the company's own sawmill operations, (2) from outside sawmills delivered by scow and (3) from outside sawmills delivered by railroad car or truck.

Fundamentally, the boiler plant has been designed to provide efficient combustion of Western Hemlock hogged fuel which may contain as much as 52% moisture, and which has been exposed to salt water. The steam plant proper includes four 250-lb. pressure boilers, Sterling type, each rated at 865 H.P. and equipped for 165° superheat at 200% rating.

The method of firing the hogged fuel is regarded as an important feature of the plant, and one which is demonstrating its value in operation. Each boiler has a twin 16-foot Dutch oven, each of which is fired thru three feed chutes. All furnaces are supplied with induced draft and preheated air which, with the 12′x 180′ stack and cyclone cinder cones, serve to effect efficient combustion.

The Dutch oven furnaces were designed to burn inferior Western hemlock fuel of high water content, there being no dry shavings in the fuel supply. Preheated air is admitted under the grates in the Dutch ovens as well as up thru the side wall where it is blown upon the surface of the fuel bed. The reason for adopting this particular design, together with the large combustion space, was that in burning waste of Hemlock logs which have been lying in salt water for some time slag deposits will accumulate on the grates and thus tend to kill circulation thru this area. It has also been found that powdered slag would settle in the combustion chamber and not adhere to the tubes, preheater bafflers, or induced draft fans.

Each side of the twin Dutch oven is arranged with proper dampers so that half of the oven can be cleaned while the other is still under full fire. The rear of each combustion chamber is fitted with oil burners sufficiently large to carry the boiler at 300% rating.

Operation of each boiler is controlled thru feed water regulators, CO_2 recorders and flow meters.

Each boiler is a complete unit of its own with forced and induced draft equipment, also cinder precipitators which eliminate about 95% of all unburned hog fuel whereby the nuisance of cinders, carbon, and sparks

Fuel barges moored in a slip adjacent to the storage pile are unloaded by the crane and clam shell bucket into the hopper attached to the crane. The illustration depicts fuel handling layout.

being blown out over the mill buildings is eliminated. All of the induced and forced draft equipment, as well as the preheaters, were supplied by the B. F. Sturtevant Company, together with the necessary turbines and reduction gear sets for driving the fans.

Steam is delivered to the sawmill at 100 lbs., to the digesters at 175 lbs., to the two turbines driving the pulp drying machines at 175 lbs., and exhausted at 30 lbs. back pressure for use as process steam in the drying cylinders.

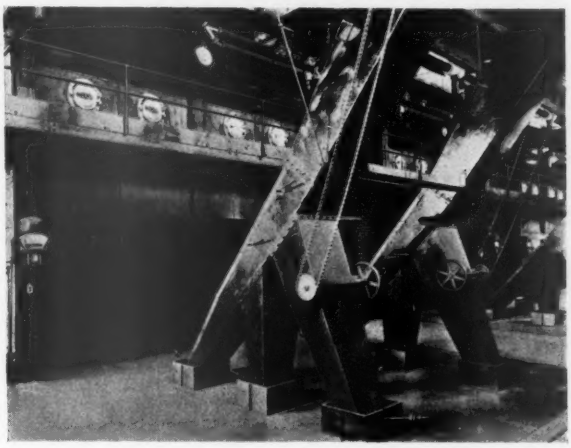
The hogged fuel conveying equipment, all of which was designed and installed by the Link-Belt Company, presents an interesting study in itself. The fuel handling system has been designed to permit handling from any one of the three sources of supply with the equipment serving multiple uses wherever possible. There are two types of main conveyor, belt and flight, the latter employing Link-Belt rivetless chain.

Fuel is taken from scows by an overhead crane with a clamshell bucket which discharges into a traveling steel feed hopper. The significant feature of this Link-Belt hopper is that it is attached to the crane and travels with it, thus permitting the crane operator to devote his entire attention to the crane. A double strand conveyor chain taking the fuel from the hopper is timed so that the belt conveyor running along the face of the dock is kept uniformly loaded.

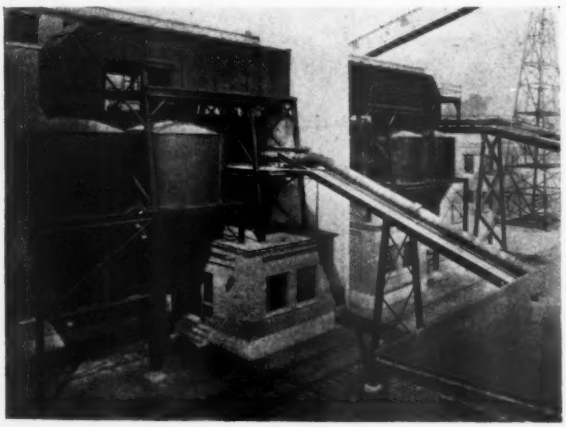
Fuel delivered by railroad car or truck is dumped into a track hopper which has sufficient capacity to receive a full carload of hogged fuel. Feeding chains pay out the fuel to the 36-inch belt conveyor at a uniform rate.

The belt conveyors from track hopper, sawmill and wharf dump on flight conveyors which carry the fuel either to the boiler house or to storage. Conveyors are provided for reclaiming the fuel from the bottom of the storage pile. All flight conveyors are provided with heat-treated rivetless chain. To eliminate possible damage by jamming all sprockets on the flight and boiler house conveyors are fitted with break pin hubs. Thus if jams occur the pins will give way, permitting the motors to run until the trouble is located and a new pin can be quickly installed.

Arrangement of the conveyor system permits regulation of fuel delivery to boilers or storage with a single discharge gate. The storage conveyor is carried on steel trusses approximately 55 feet high. Discharge to the pile is accomplished without outlet gates, thus necessitating a minimum of attention. The storage yard will accommodate some 7,500 units of hogged fuel, units of 200 cubic feet each.



Right—Hogged fuel is fed to the Dutch ovens in three chutes by automatic conveyors. Air is admitted for combustion thru sidewall openings as well as thru the grates.



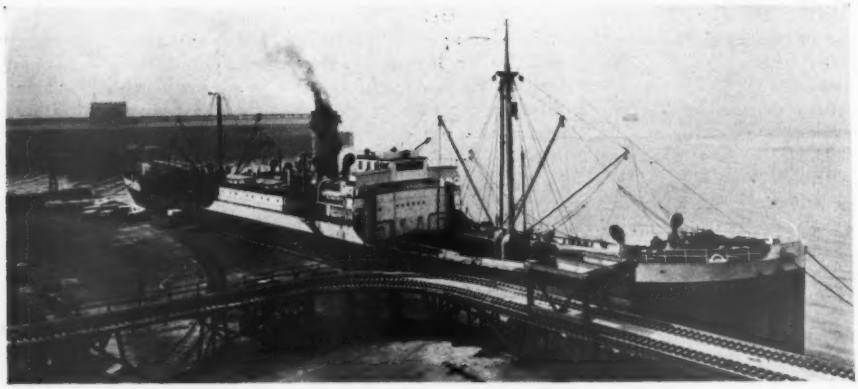
Left—Each boiler with its draft equipment and cinder precipitators (here shown) is a complete unit. Combustion in the steam plant is particularly effective and the smoke released is largely dirt free.

SURROUNDING any new industrial enterprise there is always some aura of romance, things of interest, achievement, ingenuity, most of which must be left unsaid lest the picture of the whole, painted in bold strokes which catch only the high lights, be submerged in detail. In the story of the Puget Sound Pulp & Timber Company's new mill at Everett, is this situation no less true.

It might not be amiss, however, to sketch in at the close something of the background, a reflection of how a new enterprise casts an influence over a community.

Everett is a bustling young city which for several decades has been busily sawing wood. Strung along the mouth of the Snohomish river and the deep, protected saltwater front, are many sawmills, a chief backbone of the Everett's industrial life.

Early in 1929 street gossip spread that a big new pulp



SHIPPING

Above—A big ocean freighter loading pulp at the Puget Sound Pulp & Timber Company's docks at Everett, Washington, for world ports. Below—The mill gets its water supply from the Sultan river.

mill was planning to locate in Everett. It was all quite hazy, but there seemed to be smoke, so there surely must be fire. A new company was reported to be negotiating with the city for an industrial water supply. Everett's citizens became interested. Finally events reached a stage where the Everett citizens were asked, "Will you pledge $2,000,000 in bonds that our city may construct an industrial water line to supply a new mill?" Everett citizens said "Yes" with the biggest vote ever cast.

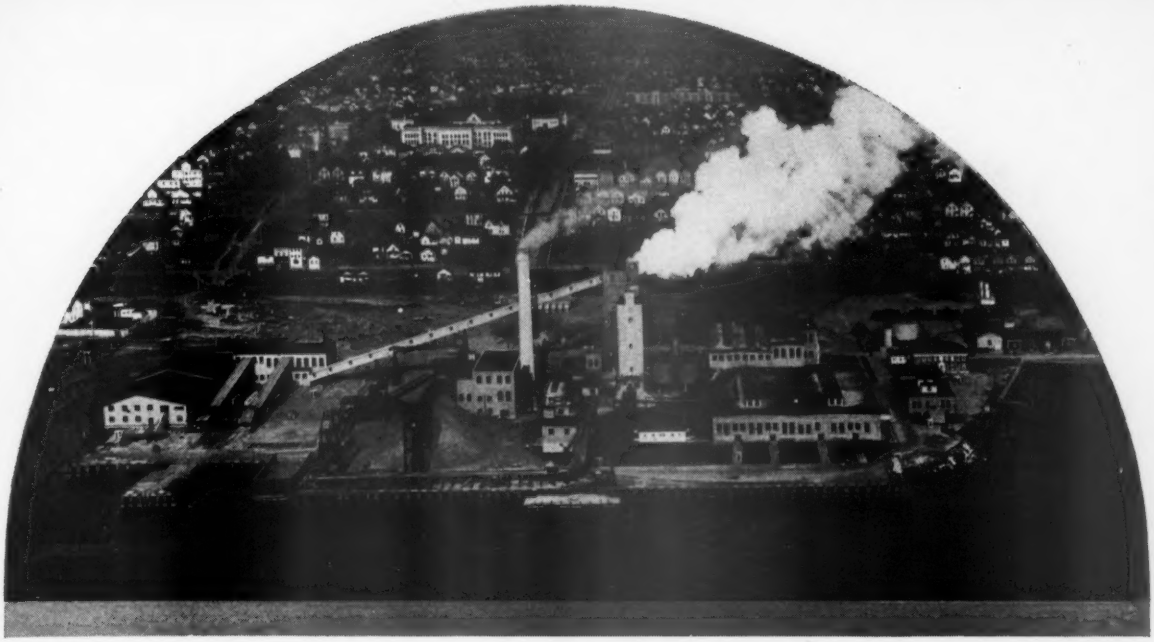
Down on a barren site on the water front things began to happen and then Everett as a city got busy. Thru its contractors it put as many as 600 men to work and launched the expenditure of that $2,000,000. With this amount it built a diversion dam, turned a lake into a storage reservoir capable of storing some 4½ billion gallons of water, built some connecting tunnels and provided a water line some 22 miles long, capable of delivering 50,000,000 gallons of water daily to the city of Everett from the mountain waters of the Sultan river.

The main units of the water system permit easy doubling of this delivered capacity.

The water, delivered to the pulp mill, is first filtered in a system installed by the California Filter Company, Inc., before being used in the mill process.

The water supply is but one phase. Logs coming out of the hills in the country tributary to Everett find now another outlet in a new commodity as the pulp mill sets up to work as a companion industry to the sawmill in utilizing the Pacific Coast bounteous timber resources.

Thus, from the initiative of a few men and the cooperation of a city, more than $6,000,000 are spent in one community within a twelve-month to back up the idea that Pacific Coast's woods can take their rightful places as a major factor in the chemical wood-pulp supply of the world.



Aerial view of the new 175-ton Bleached Sulphite Pulp Mill— EVERETT DIVISION of the PUGET SOUND PULP & TIMBER CO., Everett, Washington.

OUR NEW EVERETT MILL IS NOW PRODUCING

A UNIFORM CLEAN BLEACHED SULPHITE PULP

Completed only in June this year, our EVERETT DIVISION mill is operating at approximately its daily capacity of 175 tons bleached sulphite pulp.

This mill is now producing a pulp remarkably free from dirt, of good color and uniformity due to our very careful laboratory control of operations. The mill has also shown its ability to produce very strong pulp for those paper mills desiring that quality to predominate.

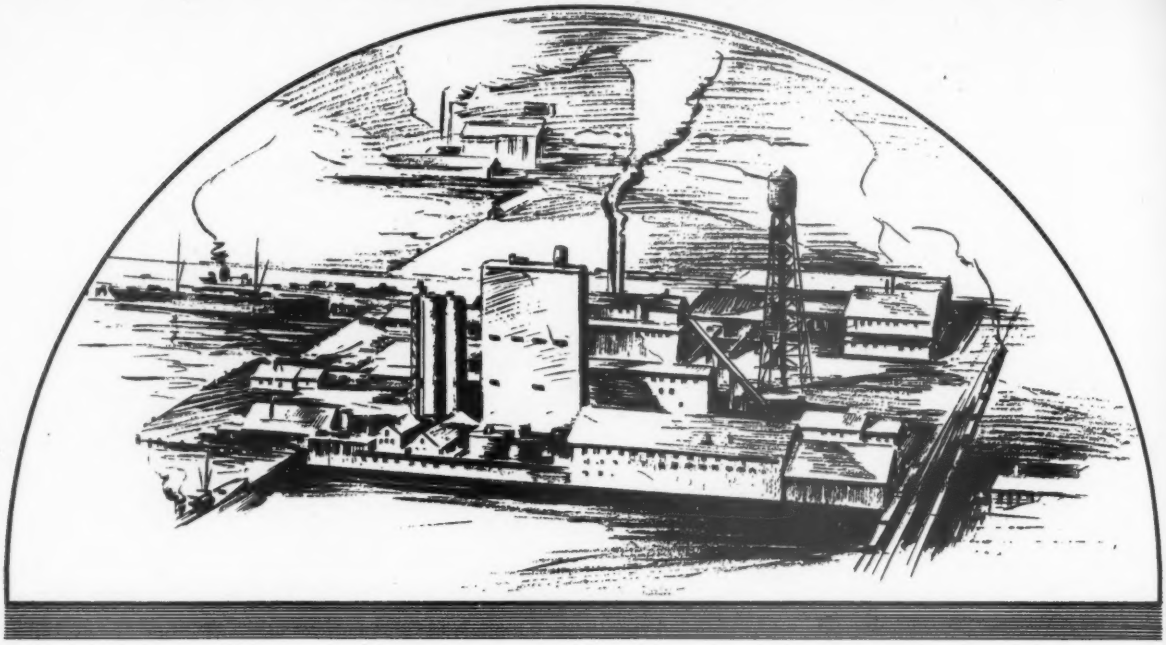
Quality in our Bleached Sulphite begins with the use of the best Hemlock logs. They are cut up in a sawmill specially designed to manufacture the wood in the most suitable way to insure the maximum of cleanliness and uniformity of chips. The pulp mill itself, through experienced design and modern equipment, aims to preserve the high qualities in the raw material.

Throughout all manufacturing operations extreme care is constantly exercised to produce the finest product possible. The result is a quality pulp which we urge all paper mills using bleached sulphite to try out in their own plants.

EVERETT DIVISION

PUGET SOUND PULP & TIMBER CO.

Executive Offices **EVERETT · WASHINGTON**



The ANACORTES DIVISION mill of the PUGET SOUND PULP & TIMBER CO., Anacortes, Wash.

150 TONS
of high quality UNBLEACHED
PRODUCED BY OUR

60 TONS DAILY

The first unit of our company, the ANACORTES DIVISION (then known as the Fidalgo Pulp Manufacturing Company) was established in 1925 to produce unbleached sulphite pulp from waste wood for both domestic and export shipment. From an original daily capacity of 20 tons the Anacortes mill has been steadily improved and expanded until it is now producing 60 tons daily of high grade unbleached pulp.

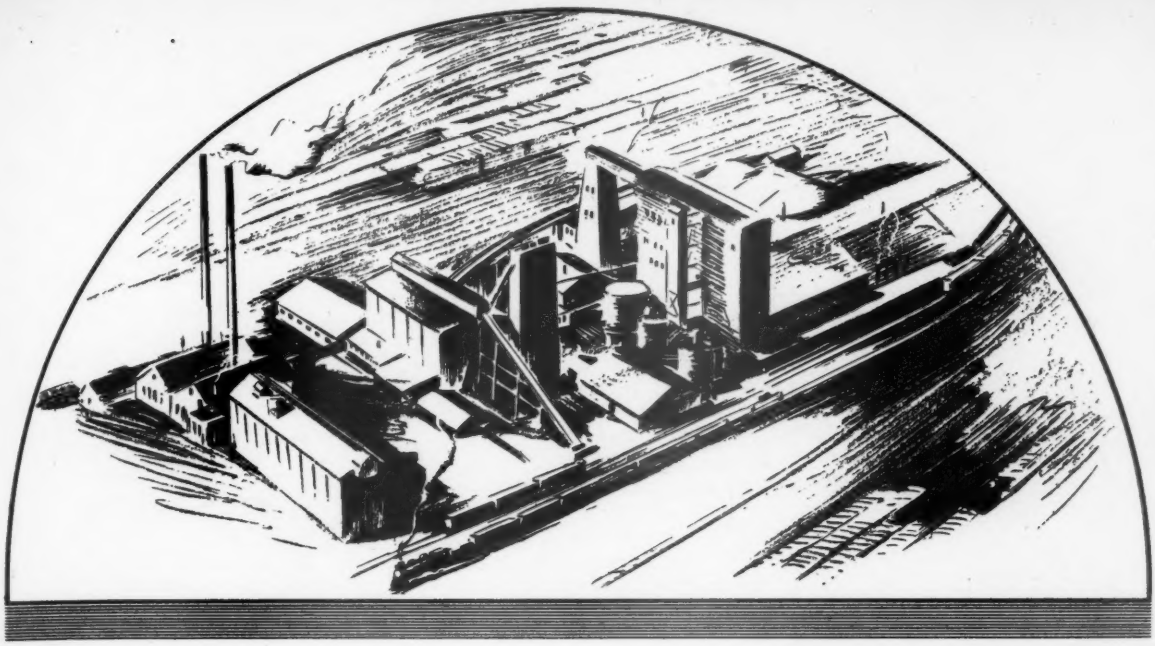
The success of manufacturing unbleached sulphite pulp from waste wood being established by the Anacortes mill, a second plant was determined upon and in the Fall of 1926 the BELLINGHAM DIVISION (then known as the San Juan Pulp Manufacturing Company) went into production with an original capacity of 60 tons daily which has since been increased to 90 tons daily.

Shipments are made regularly to all parts of the world directly from the mill docks at Anacortes and Bellingham. Our unbleached sul-

ANACORTES DIVISION

PUGET SOUND PULP & TIMBER CO.

Executive Offices **EVERETT · WASHINGTON**



The BELLINGHAM DIVISION mill of the PUGET SOUND PULP & TIMBER CO., Bellingham, Washington.

DAILY
SULPHITE PULP
BELLINGHAM & ANACORTES DIVISIONS

phite has successfully established itself in the world's markets in competition with European pulps.

The plant facilities for shipping and handling its raw materials and finished products at all three pulp divisions are unique from an economical standpoint. The company has its own shipping terminals and is independent as to supply of its raw material.

Limerock is brought by barges from the MITCHELL BAY DIVISION located on an island in the San Juan group, to the mills at Anacortes, Bellingham and Everett, Washington.

The HARTFORD EASTERN and PUGET SOUND & CASCADE RAILWAYS owned by the company tap a very large stand of the best pulp timber in the State of Washington as far as quality and accessibility are concerned. The company's pulp timber exceeds in percentage of Western Hemlock, Balsam Fir and Sitka Spruce other stands in the state and is of a high elevation, superior wood.

90 TONS DAILY

BELLINGHAM DIVISION

PUGET SOUND PULP & TIMBER CO.
Executive Offices **EVERETT · WASHINGTON**

CLEAR LAKE DIVISION Sawmill

A Magnificent Stand of Hemlock on Our Clear Lake Tract

FROM THE FINEST OF OUR HEMLOCK TIMBER

In the belief, born of experience, that the finest of bleached sulphite pulp can be produced only from the very best of forest wood, the company brings to the EVERETT DIVISION, virgin growth Western Hemlock logs from 14 to 60 inches in diameter and from 16 to 40 feet in length from its own large timber lands in the Cascade Mountains of Western Washington. Hemlock of the size and quality shown in the photograph on this page is free from knots and defects and contains a very large percentage of excellent pulp wood.

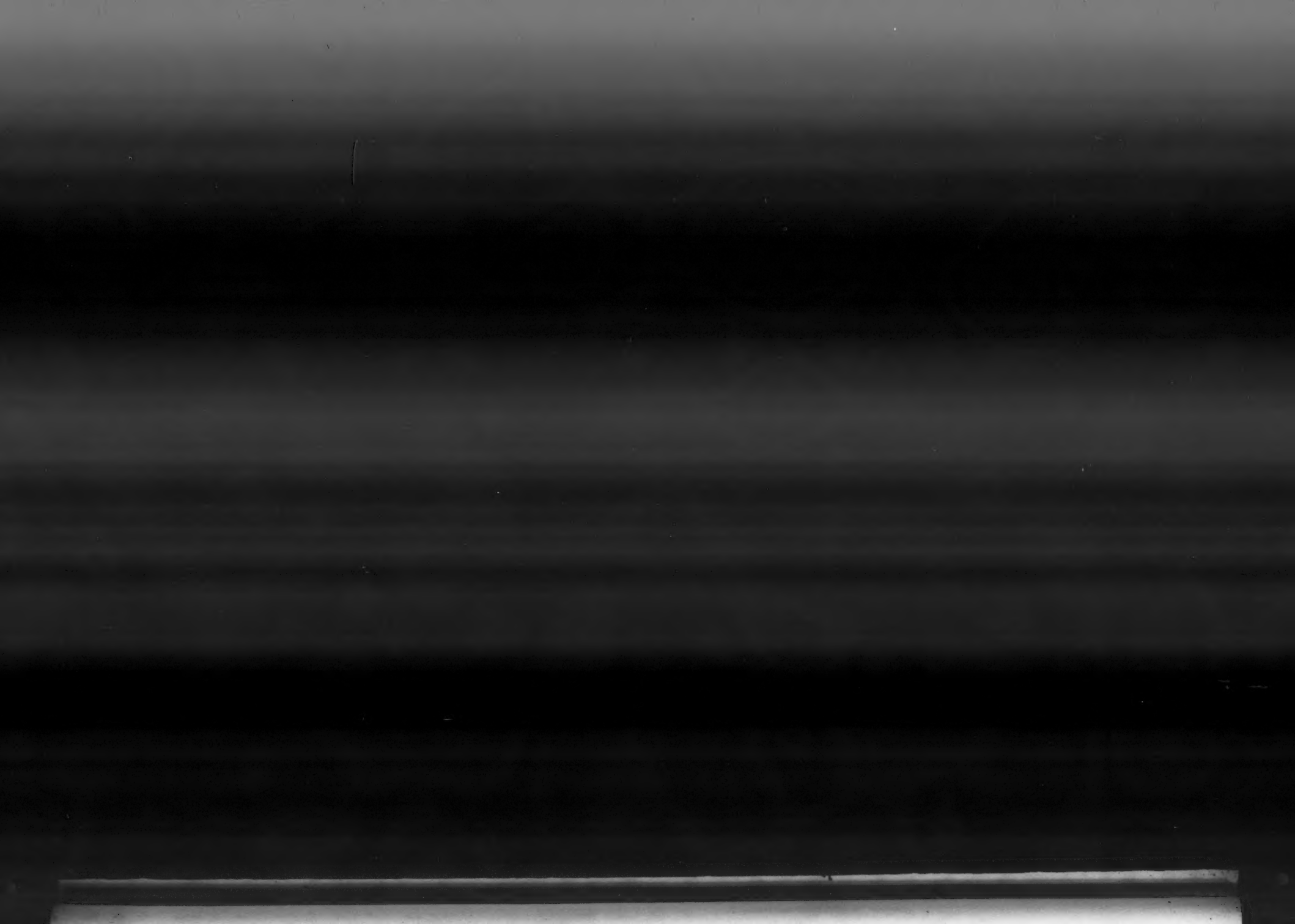
From the lower altitudes of the company's timber reserves, comes the world known Douglas Fir and Red Cedar, which are manufactured into lumber and shingles in the large CLEAR LAKE DIVISION sawmill at Clear Lake, Washington, at the base of the Cascade Mountains.

The PUGET SOUND PULP & TIMBER COMPANY'S varied operations are all closely knit together with the common purpose in mind of producing high quality bleached and unbleached sulphite pulp from the finest of Western Hemlock.

CLEAR LAKE DIVISION

PUGET SOUND PULP & TIMBER CO.

Executive Offices **EVERETT · WASHINGTON**



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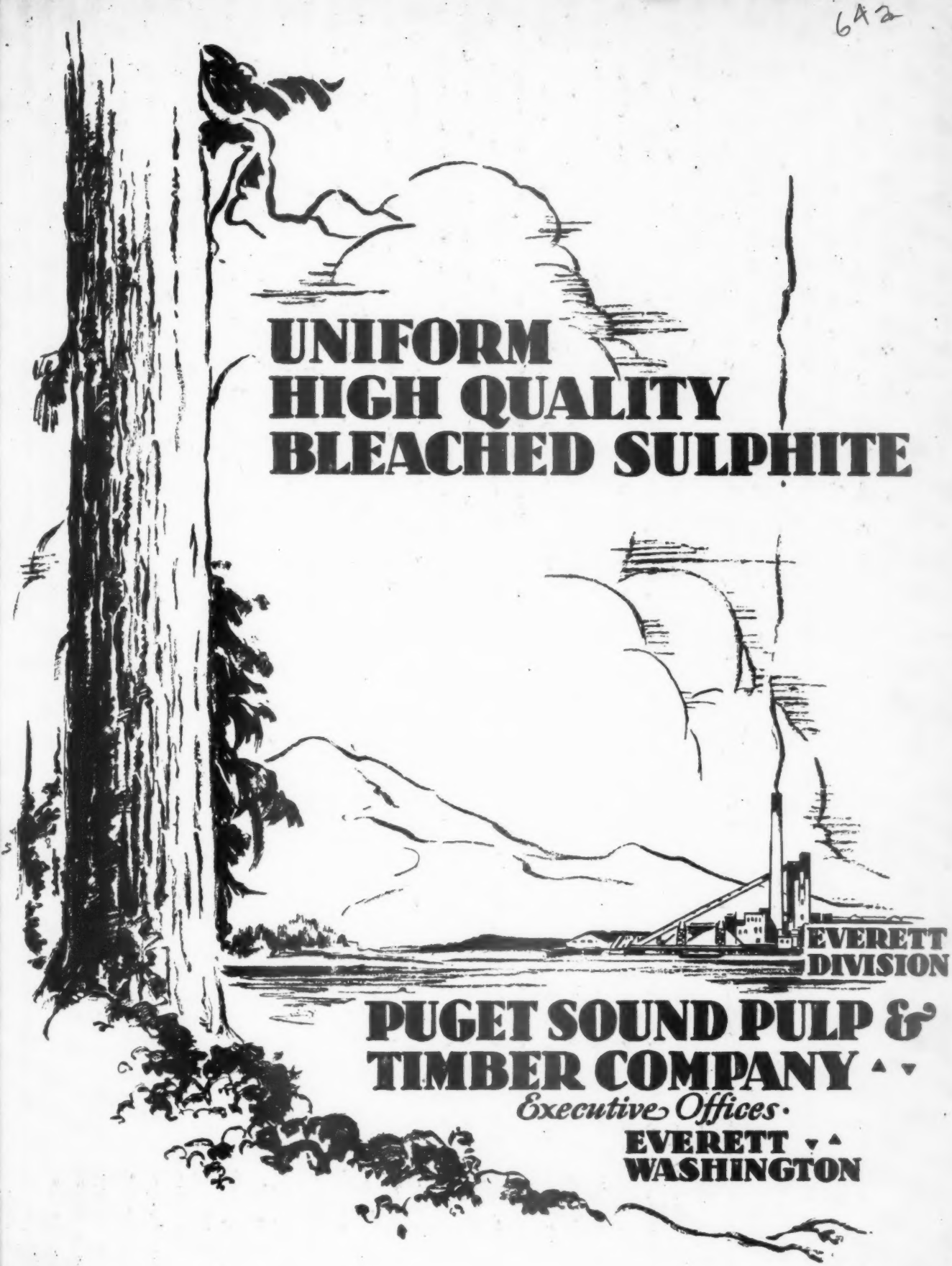


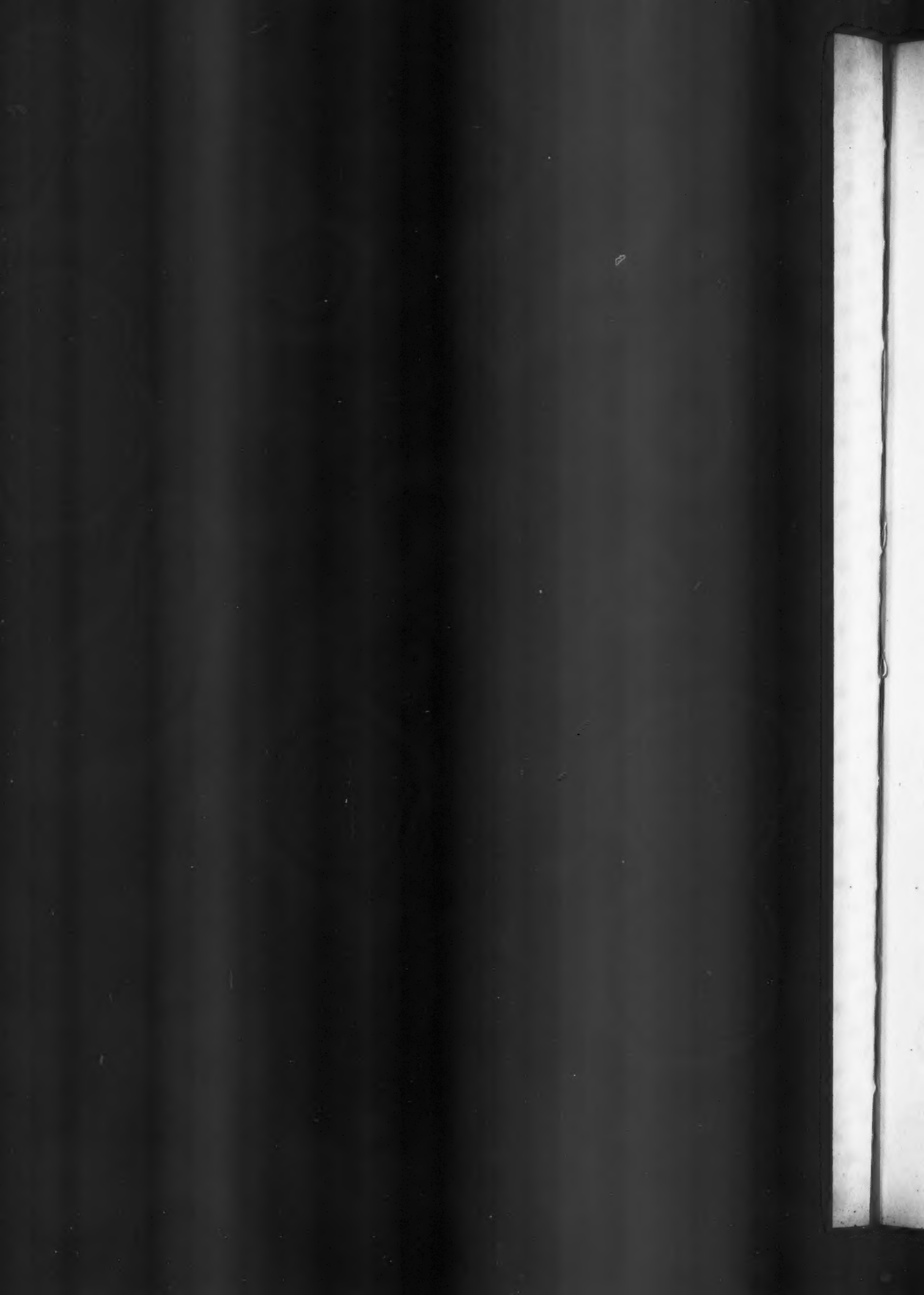
UNIFORM HIGH QUALITY BLEACHED SULPHITE

EVERETT DIVISION

PUGET SOUND PULP & TIMBER COMPANY

Executive Offices

EVERETT
WASHINGTON



27 BINGHAM PUMPS
for
PUGET SOUND PULP and TIMBER CO.

PUGET SOUND PULP & TIMBER CO.
EXECUTIVE OFFICES
EVERETT, WASHINGTON

Feb. 6, 1930

Bingham Pump Company,
Portland, Oregon

Gentlemen:

We are enclosing herewith our order for twenty-six paper mill pumps for our new pulp mill. Please forward immediately dimension prints on all pumps to our engineers, Hardy S. Ferguson & Company, New York City.

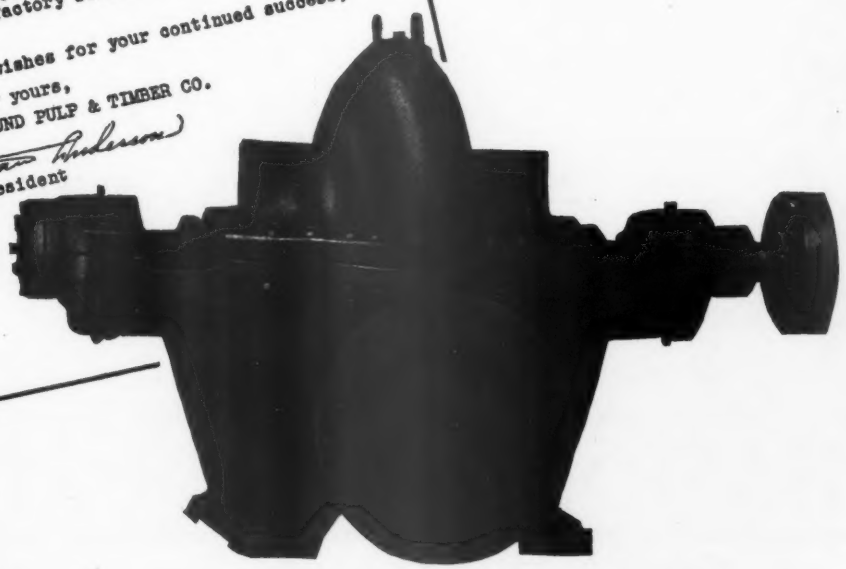
With the approval of our engineers we have selected your pumps for a large portion of our new mill. This in line with our policy to favor Pacific Coast products whenever possible, thus minimizing the amount of invested capital in spare parts, and giving us a direct factory service which is always invaluable.

With best wishes for your continued success,

we are Very truly yours,
PUGET SOUND PULP & TIMBER CO.
President

OA:REL

BINGHAM PUMPS ARE
PACIFIC COAST MADE



BINGHAM PUMP COMPANY

General Office and Factory:
East Seventh at Main Street

PORTLAND OREGON

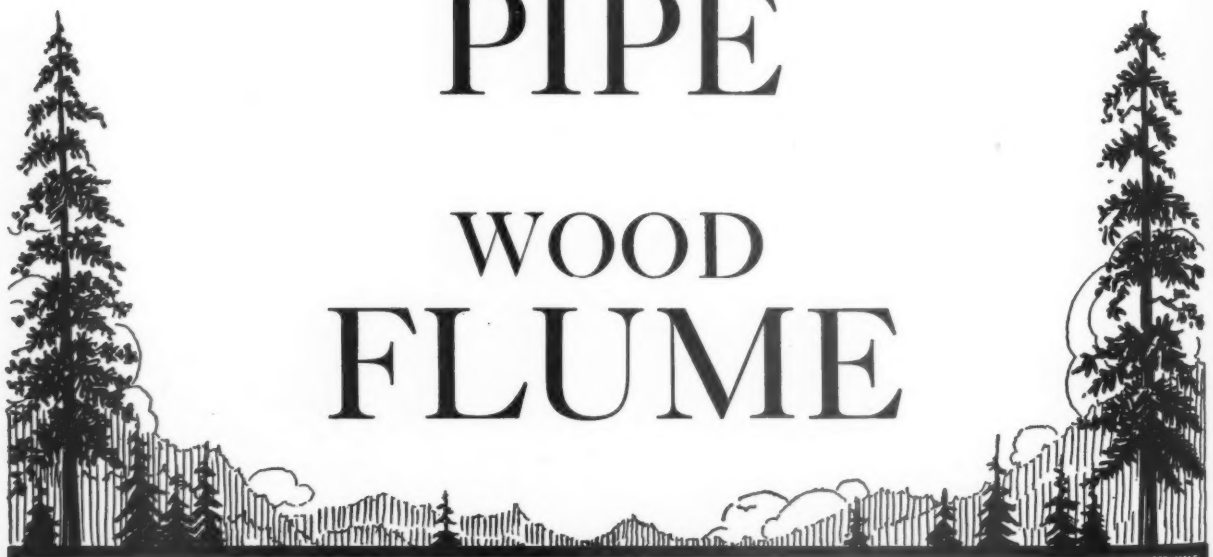
When writing BINGHAM PUMP CO., *please mention* PACIFIC PULP AND PAPER INDUSTRY

Manufacturers of

WOOD TANKS

WOOD PIPE

WOOD FLUME



NATIONAL TANK & PIPE CO.

KENTON STATION **PORTLAND, ORE.**

DIVISION OF
M. & M. WOOD WORKING CO.

New Types
New Models
New Machines

EQUIPMENT

Manufacturers of, and dealers in, equipment used by pulp and paper mills, board manufacturers, converting plants, paper merchants, or any other branch of the industry may make their announcements in this department.

New Dealers
New Branches
Appointments

Steam Accumulator Executive Visits Coast

G. E. Lofgren, Chief Engineer of Ruths Steam Storage, Inc., was in Portland for about two weeks in August. With Ray Smythe, manager of the Willamette Iron and Steel Works, he visited a number of pulp and paper mills in the Northwest to make a survey of conditions and to find out just where accumulators could be installed to advantage.

Arrangements were made some few years ago for the Willamette Company to manufacture equipment for Ruths Steam Storage for installation in the Northwest. During Mr. Lofgren's visit arrangements were made for Willamette to represent them in selling as well as manufacturing.

The Ruths Company have installed 453 accumulators in industrial plants of various kinds throughout the world. Of this total amount 152 pulp and paper mills have installed accumulators, 16 in the United States and Canada and 137 abroad. The latest installation is for the Northwest Paper Mills at Green Bay, Wisconsin. This accumulator has a total volume of 11,000 cubic feet and a capacity of 20,000 pounds of steam per hour. The working pressure is 150 pounds.

In every instance where accumulators have been installed, Mr. Lofgren states, the purchaser has been enthusiastic about the operation and it has been possible to either speed up production or to make a more uniform product because of the balanced power load. The fabrication and erection of accumulators calls for the very highest type of workmanship and heavy machine equipment. This product will work in very nicely with the Willamette Company as the accumulators are very similar to a digester in many respects.

New Shartle Top Press Drive

A compensating drive for driving top press rolls, recently developed at the Franklin Board and Paper Company, is to be marketed and sold by the Shartle Brothers Machine Company at Middletown, Ohio.

Mr. Gleason, the superintendent of the mill, claims excellent results from the use of this device, stating that on his last primary press slippage of the top press roll was cut down to an almost negligible quantity. This, of course, effected a marked saving in felt costs, this being cut from $1.63 per ton to $1.37, or a total of $19.50 per day.

Due to not having such tight draws the sheet widened out enabling them to get a wider trim and also keeping the felts open all during the week so that it is very seldom necessary to move the press weights in. This in turn has meant a material reduction in wet streaks and therefore evener drying.

Simonds Million-and-a-Half Dollar Plant

The largest saw factory in the world, to cost about $1,500,000, and consisting of building units of the most modern type is to be built immediately by the Simonds Saw & Steel Company in Fitchburg, Mass., where the industry was founded nearly a century ago.

Cameron Has New Butt Rewinder

The Cameron Machine Company, manufacturers of slitting and roll-winding machines, has developed a fast, accurate, and simple machine for reclaiming core waste and for rewinding butt rolls or rejected rolls of newsprint and magazine paper. The machine can be operated by one man. This machine splices the paper automatically with "An Invisible Splice", and it rewinds the paper into rolls better than the average best of the original mill rolls. These spliced rolls can be run at the top speed of the fastest presses.

Good Business With Webster-Brinkley

The Webster-Brinkley Company of Seattle, manufacturers of conveying, screening, elevating, agitating and transmission equipment are completing a 75-foot extension to their machine shop to take care of increased business at their two acre plant at 651 Alaska Street, Seattle.

The office building at the plant has been enlarged and the sales department, formerly located at 538 First Avenue South is now merged for convenience with the engineering and clerical departments right at the plant.

FARREL-BIRMINGHAM
COMPANY, INC.
80 State Street, ANSONIA, CONN.

PAPER MILL MACHINERY:

Paper and Board Calenders.
Chilled Iron Rolls for Various Purposes.
Roll Grinders, Roll Calipers.
Coating, Saturating, Silicating, Paraffining, and Waxing Machines.
Hydraulic Pulp Dehydrating Presses, Calender Roll Recovering Presses.
See Mechanical Catalogue A. S. M. E.

Roll Grinding Machines: Two-Wheel Roll Grinding Machines with swing rest and cam type crowning device always produce an absolutely accurate and correct shape; noted for efficiency and low-grinding costs. List of installations on request, with sizes and specifications.

NEW RECORDS FOR PRODUCTION AND PRECISION ARE MADE ON FARREL-BIRMINGHAM MACHINES

"IMPCO" Knotters
Deckers and Washers
for the
New Bleached Sulphite Pulp Mill
of the
Puget Sound Pulp & Timber Co.

"IMPCO" KNOTTER

Used for first screening of sulphite pulp, designed for quickly and gently removing knots in a manner to improve quality.

Minimum Power --- Large Capacity --- Lowers Operating Costs

Improved Paper Machinery Corporation
NASHUA, N. H., U. S. A.

In Canada: **Sherbrooke Machineries, Limited**
SHERBROOKE, QUEBEC

DECKER *or* THICKENER

Thickens sulphite pulp to 10%. Built in any size required. Extra heavy cylinder mould. Gear driven couch roll which increases capacity and eliminates wear on cylinder faces. Double water compartments with gate control.

MULTIPLE STAGE *Two, Three or Four Cylinders* WASHERS

These machines are multiple stage Washers, which system has been proven unquestionably superior.

Salesmen's Maxiom ★
No. 3

A good salesman never quits *asking* for the business he wants

There are two classes of buyers among your possible customers:

Those who can be sold with ordinary effort in three or four calls and

Those who value their established source of supply and its satisfactory merchandise so highly that they resist your best efforts to add them to your customer list.

The first type is of relatively small value to any salesman. They are yours today and gone tomorrow. Nice fellows—but unstable accounts requiring constant replacement.

The second group, those who've "been doing business with Brown and Black for nigh onto fifteen years and reckon we'll just keep right on with them," are the kind that mean success and advancement for you. When you land them they'll likely be as loyal to you as they have previously been to the other fellow.

It takes Patience and Persistent Asking to get their business. It sometimes takes years, too.

That's where the "average salesman" falls down; he either quits calling or drops into the rut of "anything you need today?" He doesn't keep on *asking for the business.*

When you finally have won this loyal kind you'll need every club in your bag to cement them to you.

That is when "Rely on Everett" Book and Printing Papers give you "a stroke a hole."

Their remarkable printing quality and their uniformity have helped hold many printers loyal for almost forty years.

They are constantly being improved.

*A coined word, combining:

Maxim—a rule or precept sanctioned by experience and relating especially to the practical concerns of life.

Axiom—an established principle in some art or science.

EVERETT PULP AND PAPER CO.

Home Office and Mills: Everett, Washington

Sales Offices: 244 California Street, San Francisco. 802 Washington Bldg., Los Angeles

T-R-A-D-E - T-A-L-K

Devoted to the Paper Trade of the Western States

Al Kuhn from Seattle to Fresno

Two changes involving the Fresno, California, division of the Zellerbach Paper Company have been announced by the executives. Alvin "Al" Kuhn, recently sales manager of the Seattle division, has been promoted to the management of the Fresno division. He replaces R. C. Clark.

For Mr. Kuhn this is a return to the city where he formerly worked. Al was formerly manager of the Pacific Coast Paper Company's branch at Fresno. He has been with the Zellerbach Company only a comparatively short time and his promotion is regard as indicative of the recognition afforded employes of the Zellerbach Paper Company, based upon recognized ability.

Mr. Clark, in vacating the Fresno position, has been moved up to the San Francisco executive offices to be sales promotion manager. Following the general policy of the company Mr. Clark will spend most of his time in the field working with the division managers, assisting them in sales problems.

Mr. Clark not long ago succeeded his father to the management of the Fresno division, upon the retirement of the elder Clark from the paper business. He is well known to the trade in the central California area.

Ira F. Doud Resigns

Ira F. Doud, for the past 16 years Portland representative for the Graham Paper Company, with offices in the Pittock block, has resigned to engage in the restaurant business in that city. He is succeeded by Charles McKillop, who has been connected with the local office since the first of the year.

The company recently opened offices at Yakima, Washington, and in Seattle.

George W. Doud, representative of the Graham Paper Company's San Francisco office, accompanied by his mother, was a recent Portland visitor. Mr. Doud is a brother of Ira F. Doud, formerly with the Graham's Portland office.

Changes in Zellerbach Portland Division

Graham Whitehurst, who for the past four years has been doing specialized floor layout work for the merchandising departments of the 16 divisions of the Zellerbach Paper Company, has been made operating manager of the Portland branch.

Mr. Whitehurst succeeds W. R. McWaters, who has been transferred to San Francisco as operating manager. Mr. McWaters was connected with the Portland division for the past eight years and for the last 18 months had been local operating manager.

Earl E. Brown, Blake Moffitt & Towne, Los Angeles division, has been transferred to the Tucson, Arizona, division of the company. Previous to joining Blake Moffitt & Towne, Mr. Brown was connected with the Standard Paper Company of Tacoma, Wash., for ten years.

Sparrowe with Pacific Coast Paper Mills

Charles G. Sparrowe, formerly with the Butler Paper Corporation at San Francisco, is now California representative for the Pacific Coast Paper Mills of Bellingham and has offices at No. 7 Front Street, San Francisco. Mr. Sparrowe succeeds F. F. Foote, who has been transferred to the company's mill at New Westminster, B. C., where he has charge of sales.

Zellerbach's Seattle Division Has New Manager

The Board of Directors of the Zellerbach Paper Company have announced the promotion of A. W. Akers to the position of manager of the Seattle division. Mr. Akers succeeds William Guthrie, whose resignation has been accepted on account of ill health.

Mr. Akers is an engineer by profession. Until his promotion he was in charge of purchasing for the various mill interests associated with the Crown Zellerbach Corporation maintaining offices in the White Building, Seattle. He came to Seattle some time ago from San Francisco, where he had been operation manager of the San Francisco division of the Zellerbach Paper Company.

The only change announced within the Seattle division by the newly appointed manager is the appointment of T. J. "Tommy" Severson as manager of the printing paper department. Mr. Severson has been associated with the Zellerbach Paper Company for more than eight years, and his promotion was made as a merited appreciation of his work.

J. S. Colbran, vice-president and treasurer, General Paper Company, San Francisco, will be at the Los Angeles branch of the company for several months. Mr. Colbran has been spending his vacation at La Jolla, California.

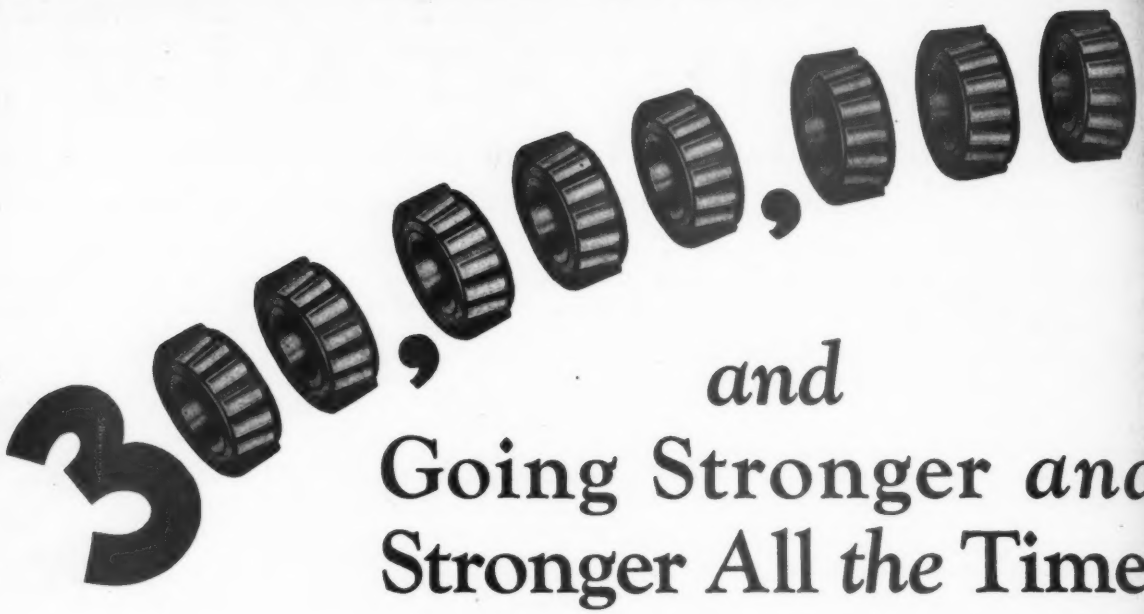
Southern Paper Products Corporation, Ltd., has been incorporated to operate a general paper business in Los Angeles, California. Capitalization, $1,500,000; directors, H. L. Dunn of South Pasadena; G. L. Sterling of Beverly Hills; F. S. Balthis of Glendale; C. La Tourette, F. N. Edwards, G. H. Ward and F. S. Balthis, Jr., of Los Angeles.

Earl Van Pool, Pacific Coast representative for the Brown Paper Company, Portland, Maine, was in Los Angeles recently, visiting the trade.

B. P. Jaggard, in charge of sales in the southern territory Hammermill Paper Company, Grays Harbor Corporation, was a visitor in Los Angeles recently.

L. G. Wood, vice-president and sales manager Northern Paper Mills, Green Bay, Wis., was a recent Los Angeles and San Francisco visitor.

Frank Carey, Powers Paper Company, Springfield, Massachusetts, visited the trade in Los Angeles recently on one of his tri-annual trips to the Coast.



and Going Stronger *and* Stronger All *the* Time!

ALREADY *three hundred million* Timken Bearings have been placed in service in all kinds of machinery, with the greatest satisfaction to manufacturers and users.

Three hundred million destroyers of friction, conservers of power and savers of lubricant.

Three hundred million carriers of radial, thrust and combined loads.

Three hundred million protectors of production and preservers of precision.

Three hundred million minimizers of maintenance and extenders of machine life.

Three hundred million mechanisms, ranging from a huge six-foot diameter steel mill bearing that is like a complete machine in itself, to intricate watch-like precision bearings for machine tool spindles . . . from big bearings that carry the tremendous weight and shock of railroad trains, to bearings that must endure where lack of attention is more rampant than anywhere else—in automobiles and trucks owned by average Americans.

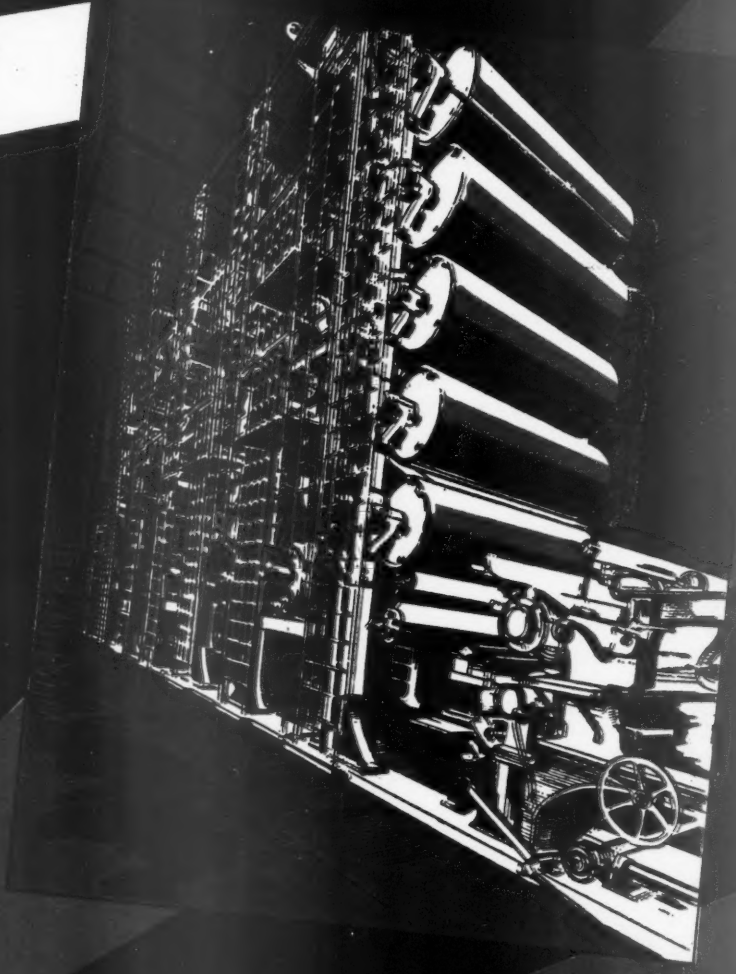
And as all Industry turns to Timken for modern anti-friction assistance, "Timken Bearing Equipped" sweeps on and on, radically revolutionizing production and production costs, bringing to bear on Industry's toughest jobs an irresistible combination of mechanical advantages . . . a combination dedicated to the wiping out of Waste . . . the exclusive combination of Timken tapered construction, Timken positively aligned rolls and Timken-made steel.

A request will bring you complete engineering recommendations on the application of Timken Bearings to your products. The Timken Roller Bearing Co., Canton, Ohio.

TIMKEN *Tapered Roller* **BEARINGS**

When writing THE TIMKEN ROLLER BEARING CO., *please mention* PACIFIC PULP AND PAPER INDUSTRY.

RETURNING THE COMPLIMENT



THIS IS BUCKEYE COVER DRIED ON VERTICALS AT THE BECKETT PAPER CO. HAMILTON, OHIO

Great for mills making board? Yes we grant you that. Standard equipment for board mills all over the country.

But, that's only part of the story. For instance, here is a cover sheet that was made on Verticals. As a matter of fact Beckett is putting a 20-lb. 20" x 26" cover stock over Verticals with entire success — getting greater tonnage — and saving steam to boot.

What are you making? Perhaps Vertical Dryers offer the solution to your problem of more dryers without adding floor space. Think it over and let's talk it over.

VERTICAL DRYERS

HAVE NEVER BEEN KNOWN TO FAIL

THE BLACK - CLAWSON COMPANY

HAMILTON, OHIO - OWNERS SHARTLE BROTHERS MACHINE CO. MIDDLETOWN, OHIO

EXPORT OFFICE 15 PARK ROW NEW YORK CITY

MINUTE MEN *of the* INDUSTRY

TELL WESTERN UNION
AND LEAVE THE REST TO
SHARTLE
BROTHERS

SHARTLE BROTHERS MACHINE
MIDDLETOWN OHIO
DIVISION OF THE BLACK CLAWSON
HAMILTON OHIO

GOODYEAR OF AKRON HAD TO HAVE A MAAG GEAR—AND QUICK. RUSHED IT TO THEM BY AIRPLANE.

JUST A MINUTE, BROTHER. WE'RE NOT SHIPPING JORDANS BY PLANE JUST YET, SO DON'T GET US WRONG. WHAT WE'RE TRYING TO IMPRESS UPON YOU IS THAT SHARTLE BROTHERS HAVE THE DESIRE AND THE TYPE OF ORGANIZATION TO RESPOND IN EMERGENCIES—AND DO SO.

"MINUTE MEN" AND NO MISTAKE. COULD BRING UP DOZENS OF INSTANCES WHERE WE HAVE HELPED THIS MILL OR THAT ONE OUT OF A TIGHT PLACE AND GLADLY.

MAKE "WIRE SHARTLES" A STANDING EMERGENCY ORDER. MIGHT SEND YOU A JORDAN BY PLANE IN A PINCH.

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The Farther from New York, the Better

Having witnessed millions in paper profits disappear in the stock market collapse last fall, Wall Street casts a gloom over all industry. In the opinion of Waldo Rosebush, treasurer and general manager of the Inland Empire Paper Company, Millwood, Washington, the farther from New York the better. Reason, less gloom influence. Nor does Mr. Rosebush see anything to be accomplished by whistling in the dark when passing the graveyard. Mr. Rosebush's characteristically frank comments, made in response to an inquiry by PACIFIC PULP AND PAPER INDUSTRY, follow:

"With reference to current business conditions, I do not think that any of us are fooling ourselves that they are really good so that notwithstanding the fact that our own business has fortunately been nearly up to normal we do not care to indulge in any of the Pollyanna talk which is so prevalent. We consider our own case exceptional, for which we are humbly thankful.

"Apparently the farther away an industry is from the New York stock market the better its condition at the present time. For that reason practically all of the West Coast mills can count themselves fortunate as, almost without exception, they had better business for quite a number of months than the Eastern mills.

"The importation of pulp wood from Russia is a very complicated affair which may be mixed considerably with business and other prejudices. The importation of this wood seems to be highly favored by the northeastern mills as it relieves their growing embarrassment in this respect and tends to hold down the prices of domestic wood.

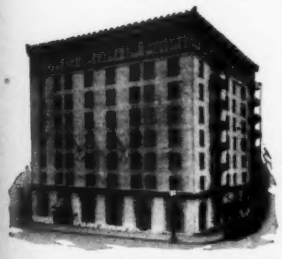
"As against the growing competition from both the South and Pacific Coast in the pulp business, Russian wood may mean the temporary salvation of the northeastern mills and consequently American labor there is vitally interested. If the importation continues undoubtedly the development of the pulp business on the Pacific Coast will not be so rapid, although we understand the pulp wood available from Russia at competitive prices probably will not exceed ten years operations."

New Scow for Powell River

To meet the requirements of sectional business and the new plant extension work the Powell River Company is building another paper scow to handle 500 tons of newsprint each loading. Construction is in the hands of the Burrard Shipbuilding & Engineering Company, Vancouver, B. C. Powell River Company already has five scows in operation between the mills and Vancouver.

The HOTEL CONGRESS

The stopping place in Portland for Pulp and Paper Men.



Sixth at Main Street
PORTLAND
OREGON

200 Rooms—200 Baths

Convenient Downtown Location.
Reasonable Rates Prevail.

LOUIS E. BOGEL, Resident Manager

Canadian Exports of Pulp and Paper July, 1930

Canada's exports of pulp and paper in July amounted to $14,908,286, according to a report issued by the Canadian Pulp and Paper Association. As compared with the previous month there was an increase of $44,563, although the figures were down as compared with July, 1929.

Wood pulp exports for the month were valued at $2,988,267 and exports of paper at $11,920,019 as against $3,208,864 and $11,654,859 respectively, in the month of June.

Exports of the various grades of pulp and paper were as follows:

	July, 1930		July, 1929	
PULP—	Tons	Dollars	Tons	Dollars
Mechanical	13,898	374,311	15,579	435,989
Sulphite Bleached	18,470	1,318,097	16,479	1,270,063
Sulphite Unbleached	17,351	852,073	15,589	763,710
Sulphate	5,712	345,689	10,314	602,891
Screenings	2,281	41,427	2,734	54,639
All Other	758	56,670	.....	.....
	58,470	2,988,267	60,695	3,127,292
PAPER—				
Newsprint	199,060	11,579,862	199,692	11,795,510
Wrapping	923	96,791	1,013	108,330
Book (cwts.)	3,265	29,243	5,956	51,030
Writing (cwts.)	.....	.....	20	743
All Other	.....	214,123	.....	301,426
	.....	11,920,019	.....	12,257,039

For the first seven months of the current year, the exports of pulp and paper were valued at $106,416,853 as compared with a total of $112,584,311 in the corresponding months of 1929. This represents a decrease of $6,167,458 or 5½% per cent which in view of present conditions is a good showing.

Wood pulp exports for the seven months were valued at $24,311,977 and exports of paper at $82,104,876 as compared with $24,597,797 and $87,986,514 respectively, in the first seven months of 1929.

Details for the various grades are given below:

	Seven Months, 1930		Seven Months, 1929	
PULP—	Tons	Dollars	Tons	Dollars
Mechanical	105,382	3,055,506	108,832	2,967,472
Sulphite Bleached	154,466	11,412,960	147,792	11,278,588
Sulphite Unbleached	122,963	6,119,978	107,061	5,309,838
Sulphate	56,444	3,281,991	78,988	4,691,636
All Other	17,250	441,542	19,445	350,263
	456,505	24,311,977	462,118	24,597,797
PAPER—				
Newsprint	1,366,664	78,887,825	1,409,993	84,414,737
Wrapping	8,422	884,116	8,728	943,453
Book (cwts.)	24,329	228,004	43,629	372,349
Writing (cwts.)	1,992	17,080	3,114	28,428
All other	.....	2,087,851	.....	2,227,547
	.....	82,104,876	.....	87,986,514

Pulpwood exports have increased somewhat this year, the total shipments for the first seven months being 794,821 cords valued at $7,958,087 as compared with 742,012 cords valued at $7,332,441 exported in the corresponding months of 1929.

Engineering Ingenuity Repairs Wheel

With a drop of 1,100 feet it doesn't require a very big turbine to develop power from the water available at the Woodfibre plant of B. C. Pulp & Paper Company. An interesting demonstration of this fact occurred when the flywheel broke on an engine driving a large fan.

Within an hour a little Pelton wheel had been mounted in a wooden casing and connected by a belt to the fan . Then a fire nozzle was rigged to discharge against the blades of the wheel and off she went. This rig actually operated effectively for a week until the engine was again put in commission. These little turbines are found all over the plant. The steam produced at Woodfibre is chiefly from wood waste.

"Let CHEMISTRY help you turn your waste materials into profits"

We are proud to have been entrusted with a part of the work which has resulted in the early completion of the PUGET SOUND PULP & TIMBER COMPANY'S new pulp mill at Everett, Washington, for we believe this new plant to be an important contribution to the industrial development of the Pacific Northwest.

Those of us who have grown up with the PACIFIC COAST pulp and paper industry realize that largely as a result of the pioneering work performed by the men back of the PUGET SOUND PULP & TIMBER COMPANY, PACIFIC COAST PULP has become a trade term to be reckoned with in the world's markets, and the skeptics who said our wood was unsuitable for good pulp have been silenced.

The new mill at Everett will benefit not only the Pacific Coast, but it is destined to prove helpful to the cellulose industries of the United States through furnishing them with a permanent domestic supply of high quality raw material.

Charles A. Newhall and Associates

CHARLES A. NEWHALL

Consulting Chemist

Specializing in
Organization of Technical Control Systems for the process industries;
Selection and Training of Technical Personnel.

Associated with

Engineering Offices of
CLYDE C. KENNEDY
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San Francisco—Los Angeles, California

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SKINNER & SHERMAN, Inc.
Research & Development; Pulp & Paper
Inspection; Tests
Boston, Mass.

Laboratories of
A. L. GLOVER, Inc.
Assayers; Analysts; Inspection & Tests
Seattle, Wash.

PACIFIC PULP INSPECTION BUREAU
Certified Tests of Pulp & Paper Shipments;
Bonded Weighers and Samplers
Seattle, Wash.—Portland, Ore.

Consultation Office:
2705 Smith Tower, SEATTLE, WASH.

S·A·F·E·T·Y

FIRST — LAST — ALWAYS

The best safety device known is a careful man

Pacific Coast Division
Pulp and Paper Section

NATIONAL SAFETY COUNCIL

ROBERT H. SCANLON
Regional Director
Powell River Co., Ltd.
Powell River, B. C.

The 19th Annual Safety Congress

The outstanding conference of the year, to consider the accident prevention problems of the paper and pulp industry of the United States, will be held in Pittsburgh from September 29 to October 3, as one of the features of the Nineteenth Annual Safety Congress and Exposition.

The Paper and Pulp Section is one of the oldest sections of the National Safety Council, having been organized in 1916. At the present time about 235 different paper and pulp industry organizations, employing nearly 130,000 men, are cooperating in accident prevention work through this section.

During the period of its organization the paper and pulp industry has accomplished a gerat deal in accident prevention. Although the 1929 accident frequency rate of the industry was only slightly less than the 1928 rate, the decrease over 1927 was about 20%. The accident severity rate for the industry showed an improvement of 11% for 1929 as compared with 1927, and an improvement of 21% as compared with 1928. These figures are based on the experience of 111 plants that have reported during each of the last three years to the National Safety Council.

The 215 plants which reported in 1929 had an average of 28.43 lost time accidents for each 1,000,000 man-hours of work. This is about 12% greater than the average frequency rate of the 3,600 different establishments, representing 27 different industries, which reported their 1929 accident experiences to the National Safety Council. These 215 establishments were divided into three different special groups. The paper goods manufacturers, with a frequency rate of 14.71, made the best group record. The paper and pulp mills had a frequency rate of 29.42, and the paper box and container manufacturers had a frequency rate of 37.76.

There was a wide variation among the 148 paper and pulp mills which reported their accident experience. One small mill, employing an average of 69 men, did not have a single lost time accident for 1929. The second best accident frequency rate, of 1.90, was made by a paper and pulp mill employing an average of 653 men. Thirteen different mills of the group had less than 10 lost time accidents for 1,000,000 man-hours of work. Two of these mills, each employing about 130 men, had accident frequency rates above 100.

The Paper and Pulp Section Congress program will consist of three half-day sessions, supplemented by an informal breakfast meeting and a luncheon session.

Two special features of the Pennsylvania Day program will be a "Foremen's Forum" and an "Executives' Dinner." The Foremen's Forum will be entirely managed by foremen, with a program conducted by foremen and for foremen. This promises to be one of the largest single sessions of the Congress.

The "Executives' Dinner" is an outgrowth of the fact that the total Congress program this year will include as speakers an increased number of important industrial executives. This is accepted as evidence that the safety movement as a whole is gradually evolving toward a more complete recognition that industrial safety is so closely related to the problems of industrial efficiency and plant management that they cannot be separated. "The Executives' Dinner" will be a new Congress feature, with admittance only by special invitation. The program will be conducted by and for industrial executives.

An Accident That Happened

Struck by a falling weight, a Port Angeles mill employe last month sustained two leg fractures, one in the right ankle and one below the left knee.

Pulp Cargo for East Coast

The freighter Ipswich lifted a sizeable cargo of bleached sulphite pulp from the docks of the new Puget Sound Pulp & Timber Company mill at Everett, Washington, on August 20, bound for Baltimore.

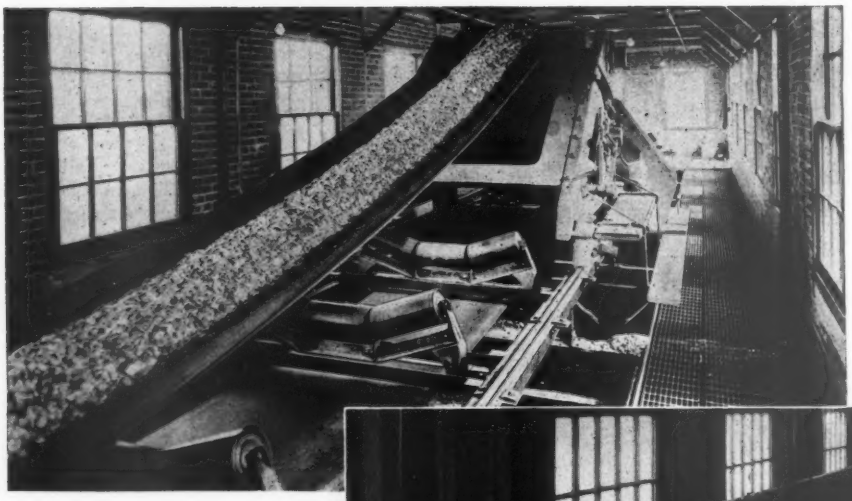
STATEMENT OF ACCIDENT EXPERIENCE—JULY, 1930

Mills in State of Washington

COMPANY—	Hours Worked	Total Accidents	Frequency Rate	Days Lost	Severity Rate	Standing
Everett Pulp & Paper Co.	83,080	0	0	0	0	1
Inland Empire Paper Co.	59,298	0	0	0	0	2
Grays Harbor Pulp & Paper Co.	66,008	2	30.3	35	.530	3
Washington Pulp & Paper Corp.	96,732	3	31.0	35	.362	4
Crown Willamette Paper Co.	442,390	18	40.7	147	.332	5
Rainier Pulp & Paper Co.	64,142	3	46.8	36	.561	6
St. Regis Kraft Co.	66,745	4	59.9	645	9.664	7
National Paper Prod. Co.	90,793	6	66.1	54	.595	8
Fibreboard Products Inc., Port Angeles	36,752	3	81.6	75	2.041	9
Puget Sound Pulp & Timber Co., Anacortes Division	24,128	2	82.9	27	1.119	10
Columbia River Paper Co.	50,738	5	98.5	38	.749	11
Fibreboard Products Inc., Sumner	19,894	2	100.5	13	.653	12
Longview Fibre Co.	85,864	10	116.5	174	2.027	13
Puget Sound Pulp & Timber Co., Bellingham Division	28,368	4	141.0	59	2.080	14
Puget Sound Pulp & Timber Co., Everett Division	77,094	11	142.7	77	.999	15
Shaffer Box Co.	8,250	2	242.4	25	3.030	16

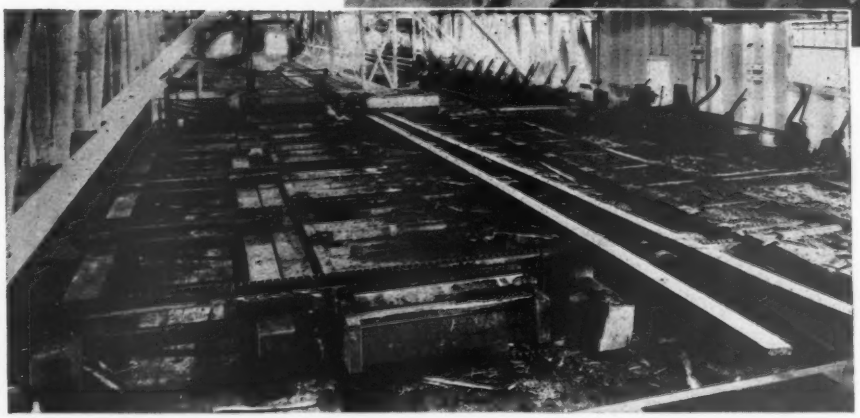
The following mills not reporting: Pacific Straw Paper & Board Co., Cascade Paper Co.—not in operation; Tumwater Paper Mills—not in operation; Pacific Coast Paper Mills.

Puget Sound Pulp and equipped with LINK-BELT



36" Link-Belt Anti-Friction Belt Conveyor with Link-Belt Tripper handling chips over Digester Bins.

Hogged Fuel Conveyor in Boiler House using double strand of Link-Belt — Rivetless — Heat-treated Chain. This conveyor discharges through Link-Belt Slide Gates directly into Link-Belt Steel Chutes to the furnaces of the boilers.



General view of sawmill where timber is cut from logs before it goes to the chipper building to be made into chips. This mill is entirely equipped with Link-Belt Malleable and Roller Chain.

LINK-BELT

Elevating, Conveying and Power

When writing LINK-BELT COMPANY *please mention* PACIFIC PULP & PAPER INDUSTRY

Timber Co's new plant
Conveyors and Chain Drives

THIS new 175-ton bleached sulphite pulp mill, one of the finest and most modern in the world, is equipped with Link-Belt elevating and conveying machinery for handling raw to finished product. Link-Belt chain drives efficiently transmit power to these conveying units.

Included in this installation are Link-Belt Anti-Friction Belt Conveyors, Link-Belt Belt Tripper, Chain Elevators, Transfer Tables, Flight Conveyors, a special movable hopper, and chain drives.

Each conveying and transmission unit used in this installation was selected as the best device made for the service it was to perform.

Link-Belt makes a conveying and positive drive unit for every service, and with our long experience in paper mill work, our engineers are prepared to solve your particular problem to your entire satisfaction.

Upper: Double Strand Link-Belt—Rivetless—Heat-treated Chain Hogged Fuel Conveyor discharging either to storage conveyor or boiler house conveyor. Middle: Link-Belt SS-124 Steel Roller Chain Drive operating Hogged Fuel Conveyor. Lower: View looking towards Hogged Fuel Unloading Crane, Hogged Fuel Conveyors, Hopper and Hogged Fuel storage.

4092

LINK-BELT COMPANY

Leading Manufacturers of Equipment for Handling Materials Mechanically and for the Positive Transmission of Power

CHICAGO, 300 W. Pershing Rd. INDIANAPOLIS, 200 S. Belmont Ave. PHILADELPHIA, 2045 W. Hunting Park Ave. SAN FRANCISCO, 400 Paul Avenue

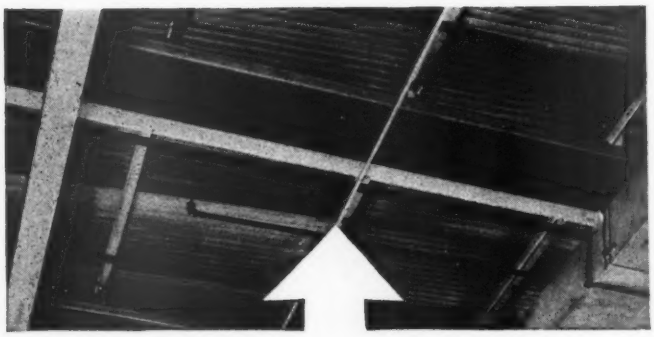
Atlanta - - - - 511 Haas-Howell Bldg.
Baltimore, Md. - 800 Maryland Trust Bldg.
Birmingham, Ala. - 229 Brown-Marx Bldg.
Boston - - - - - 1103-4 Statler Bldg.
Buffalo - - - - - 554 Ellicott Square
Cleveland - - - - 527 Rockefeller Bldg.
Dallas - - - 1101 Mercantile Bank Bldg.
Denver - - - - - - 520 Boston Bldg.
Detroit - - - - - 5938 Linsdale Ave.
Grand Rapids - 536 Michigan Trust Bldg.
Kansas City, Mo., R. 436, 1002 Baltimore Ave.
Los Angeles - - - 361-369 S. Anderson St.
Louisville, Ky. - - - - - 349 Starks Bldg.
Milwaukee - - R. 1403, 425 E. Water St.
New Orleans - - - - 619 S. Peters St.
New York - - - 2676 Woolworth Bldg.
Oakland, Calif. - - - - - - -526 Third St.
Pittsburgh - - R. 2125, 436 Seventh Ave.
Portland, Ore. - - - - - - - 67 Front St.
Seattle - - - - - - 820 First Ave., S.
St. Louis - - - - - - - 3638 Olive St.
Wilkes-Barre - 826 Second Nat'l Bank Bldg.

H. W. Caldwell & Son Co.:—Chicago, 2410 W. 18th St.; New York, 2676 Woolworth Bldg.; Dallas, 1101 Mercantile Bank Bldg. In Canada—Link-Belt Limited—Toronto; Montreal; Vancouver

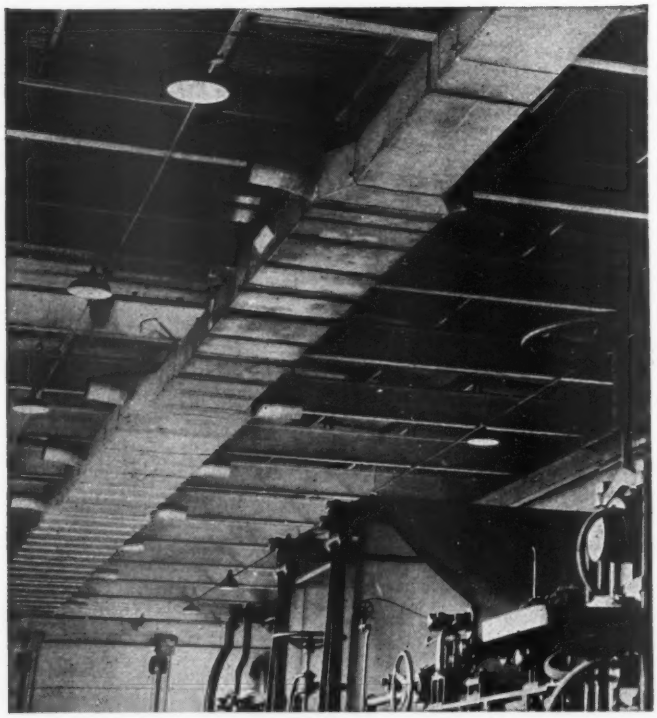
Transmission Equipment

When writing LINK-BELT COMPANY *please mention* PACIFIC PULP & PAPER INDUSTRY

Your Insulated Roof problem *starts* with the deck . . .



Note the protective Transite deck



The attacks of moisture from *within* this paper machine room of the Fitchburg Paper Co., Fitchburg, Mass., ruined the former roof and destroyed its insulating value. In replacing the old roof with a J-M Rot-Proof Insulated Roof this company has put an end to repairs and expense. The photograph shows the underside Transite construction which is only obtainable in J-M Rot-Proof Insulated Roofs. This deck of Transite permanently protects the roof from deterioration from moisture encountered *within* the mill.

YOU know the value of scientific roof insulation. It ends roof-drip. It brings you a return in hard cash by materially reducing your investment in air-conditioning and ventilating apparatus. And it brings an indirect return by improving working conditions in the plant.

To insure these savings for years to come the roof insulation must be protected not only from the weather but also from moisture penetration through the underside of the roof *deck*. Unless your roof *deck* is impervious to moisture, the insulation of your roof will soon become a soggy mass, its value nullified and costly replacements made necessary.

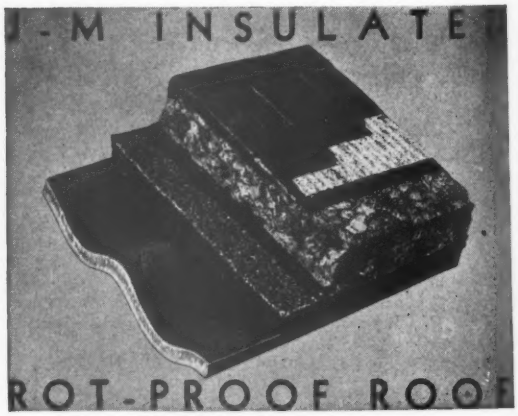
That is why the J-M Insulated Rot-proof Roof which includes its own moisture-proof *deck* is the one practical answer to this problem. Made of specially treated imperishable Transite,* the *deck* provides the permanent protection that is necessary if the insulation is to last.

On this sturdy vapor-tight base of Transite, insulation is applied to the proper thickness required for your particular conditions. To complete the design J-M Asbestos Built-up Roofing is applied over the insulation to protect it against the weather. In constructing the J-M Roof costly shutdowns are unnecessary as it can be applied in sections of any size desired.

Johns-Manville Insulated Rot-proof Roofs have nation wide acceptance. A few of the recent major installations are the West Virginia Pulp and Paper Co., Tyrone, Pa., The St. Croix Paper Co., Woodland, Me., and the Combined Locks Paper Co., Combined Locks, Wis.

We will gladly give you more detailed information at your request.

**Trade-mark registered*



JM PRODUCTS **Johns-Manville**

INSULATED ROT-PROOF ROOFS

Address JOHNS-MANVILLE
292 Madison Avenue, New York City
If West of Rocky Mountains, address
159 New Montgomery Street, San Francisco, Cal.
Canadian Address: Johns-Manville, Toronto, Canada

Please send me a copy o fyour booklet, "Controlling Condensation." M-35 RP-132-9

Name.....

Address.....

When writing JOHNS-MANVILLE CORP., *please mention* PACIFIC PULP AND PAPER INDUSTRY.

Two Crown Men Join Hawleys

Walter Graves and S. B. Shadle, for many years associated with the Crown Willamette Paper Company, have recently joined the Hawley Pulp & Paper Company at Oregon City, Oregon. Mr. Graves held several important posts with Crown, resigning as mill manager at Camas about seven years ago. Mr. Shadle was for 20 years in the West Linn office of Crown.

SHIPMENTS OF OVERISSUE NEWSPAPER

From Pacific Coast Customs Districts—May, 1930

	Pounds	Dollars
From Los Angeles		
To China	8,558,920	59,021
To Japan	200,000	33,408
To Orient	396,000	3,250
To Philippines	610,000	5,401
Total	9,764,920	101,080
From San Francisco		
To Central America	38,500	469
To China	968,792	6,279
To Orient	194,160	1,655
Total	1,201,452	8,403
From Oregon		
To China	2,800	15
Pacific Coast Total	10,969,172	109,498

PACIFIC COAST PAPER IMPORTS

MAY, 1930

	Newsprint Dollars	Printing Dollars	Writing & Drawing Dollars	Wrapping Dollars	All Others Dollars
To LOS ANGELES—					
From Sweden	94,568	.....	.....	390	1,503
From Canada	265,867	.....	.....	.....	.....
From France	.....	.....	1,195	.....	1,460
From United Kingdom	.....	.....	9	.....	2,949
From Japan	.....	119	103	.....	862
From Czechoslovakia	.....	5	.....	.....	.....
From Germany	.....	10	.....	.....	614
From Orient	.....	.....	.....	.....	161
To SAN FRANCISCO—					
From Sweden	72,319	3,728	.....	.....	.....
From Canada	206,807	.....	.....	.....	237
From France	.....	.....	335	.....	523
From Germany	.....	360	1,495	.....	7,523
From United Kingdom	.....	.....	568	.....	6,593
From China	.....	30	210	.....	977
From Japan	.....	.....	170	.....	3,409
From Netherlands	.....	1,366	.....	.....	.....
From Belgium	.....	735	.....	.....	.....
From Czechoslovakia	.....	.....	.....	.....	587
From Australia	.....	.....	.....	.....	992
From Italy	.....	.....	.....	.....	10
To OREGON—					
From Finland	4,393	.....	.....	.....	978
From France	.....	.....	780	.....	.....
From Japan	.....	.....	.....	12	.....
From Germany	.....	.....	.....	.....	82
From Sweden	.....	.....	.....	.....	1,383
From Canada	.....	.....	.....	.....	786
To WASHINGTON—					
From Canada	359,147	.....	.....	.....	6,090
From China	.....	.....	6	.....	.....
From Japan	.....	.....	.....	.....	8,598
From United Kingdom	.....	.....	.....	.....	243
From Finland	.....	.....	.....	.....	4,259
From Germany	.....	.....	.....	.....	78
Pacific Coast Totals	1,003,101	6,353	4,871	402	50,497

Total Imports all paper and paper products, May, 1930—$1,065,206.

Port Angeles Mills Running Short Time

To general overproduction in the paper industry and the stagnation of business is ascribed the reason for putting the 300-ton news print mill of the Washington Pulp & Paper Corporation at Port Angeles, Washington, on a five-day week, beginning the middle of August. Officials predict the condition may last about three months.

It is said that no curtailment has been made in production in the new 175-ton bleached sulphite pulp mill of the Olympic Forest Products Company of the same city. The 60-ton board mill of Fibreboard Products Inc. has been operating irregularly, due to seasonal fluctuations.

Richvale Rice Straw Mill Reports Progress

Latest reports from Richvale, California, indicate that progress is being made in constructing a mill there to manufacture pulp and paper from rice straw, altho a large crew is not being employed. C. A. Kieren is engineer in charge.

Japan Pulp Industry in Difficulties

Engulfed in the general trade depression which has dominated Japanese trade and industry for many months, the pulp and paper manufacturers of Nippon find things not too pleasant at present.

It is reported that Kabafuto Kogyo K. K. were only able to renew a $1,500,000 loan falling due last month after agreeing to two years of no dividends. Further loans amounting to some $18,000,000 will fall due in the next two years and there is even some speculation that a merger between Kabafuto and the Fuji and Oji interests will be the only real salvation.

Meanwhile the large wood pulp stocks on hand have a depressing effect and the market shows continuing tendencies to decline. The Japanese rayon industry is reported to be looking with increasing favor upon American pulps. Hitherto the supply has come mostly from Scandinavia and Germany.

JAPANESE PAPER PRODUCTION AND SALES

JULY, 1930

	Production (lbs.)	Sales (lbs.)
Printing paper (superior quality)	13,636,713	11,579,155
Printing paper	10,494,213	9,509,148
Writing and drawing paper	1,605,817	1,342,229
Simili paper	11,074,530	8,524,138
Art paper	1,827,869	1,231,013
News printing	47,171,169	46,815,104
Sulphite paper	4,191,324	3,989,598
Coured paper	1,547,516	1,201,527
Packing paper	10,692,926	9,021,219
Japanese paper	1,617,877	1,055,179
Board paper	5,654,615	5,396,841
Sundries	5,802,325	4,596,566
	115,316,894	104,261,717

PACIFIC COAST PULP IMPORTS—MAY, 1930

	Pulpwood Dollars	Pulpwood Cords	Mechanically Ground Pulp Dollars	Mechanically Ground Pulp Tons	Bleached Sulphite Dollars	Bleached Sulphite Tons	Unbleached Sulphite Dollars	Unbleached Sulphite Tons	Unbleached Sulphate Dollars	Unbleached Sulphate Tons
To SAN FRANCISCO—										
From Sweden	.....	.....	.....	.....	.....	.....	10,466	228	.....	.....
From Canada	.....	.....	.....	.....	.....	.....	3,038	37	3,249	138
To WASHINGTON—										
From Canada	.....	.....	.....	.....	12,926	199	.....	.....	.....	.....
Pacific Coast Totals	.....	.....	.....	.....	12,926	199	13,504	265	3,249	138

Total Imports Pulp Wood and Wood Pulp for May, 1930 - - - $29,679.

Paper Base stocks imported into Pacific Coast Customs Districts during May, 1930, were as follows: To Los Angeles from Belgium, $2,811; from France, $5,175; from Japan, $8,991. To San Francisco from China, $2,305; from Japan, $52,876; from Australia, $992. To Washington from Japan, $4,076; from Canada, $3,856.

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(Patents granted and pending in all countries)

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Increases :-
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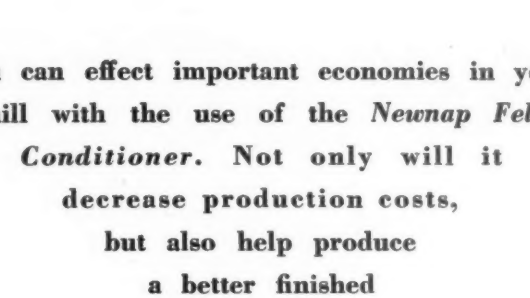

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- Felts

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When writing FIDALGO DRYING SYSTEMS, INC., *please mention* PACIFIC PULP AND PAPER INDUSTRY

North American News Print Production—July, 1930

The News Print Service Bureau's Bulletin No. 151 states that production in Canada during July 1930 amounted to 216,978 tons and shipments to 209,511 tons. Production in the United States was 102,840 tons and shipments 103,018 tons, making a total United States and Canadian news print production of 319,818 tons and shipments of 312,529 tons. During July 25,426 tons of news print were made in Newfoundland and 632 tons in Mexico, so that the total North American production for the month amounted to 345,876 tons.

The Canadian mills prduced 40,002 tons less in the first seven months of 1930 than in the first seven months of 1929, which was a decrease of 3%. The United States output was 20,170 tons or 2% less than for the first seven months of 1929. Production in Newfoundland was 20,684 tons or 14% more in the first seven months of 1930 than in 1929 and in Mexico 2,377 tons less, making a total decrease of 41,865 tons or 2%.

During July the Canadian mills operated at 71.3% of rated capacity, United States mills at 72.8% and Newfoundland mills at 106.2% per cent. Stock of news print paper at Canadian mills totalled 52,862 tons at the end of July and at United States mills 29,284 tons, making a combined total of 82,146 tons which was equivalent to 4.8 days' average production.

NORTH AMERICAN PRODUCTION

	Canada	U. S.	Newfoundland	Mexico	Total
1930—July	216,978	102,840	25,426	632	345,876
Seven Months	1,500,341	789,131	165,578	8,805	2,463,855
1929—Seven Months	1,540,343	809,301	144,894	11,182	2,505,720
1928—Seven Months	1,345,687	828,661	130,952	9,080	2,314,380
1927—Seven Months	1,160,118	893,972	115,548	8,332	2,177,970
1926—Seven Months	1,056,790	984,623	101,404	7,125	2,149,942
1925—Seven Months	869,386	884,503	41,088	7,434	1,802,411
1924—Seven Months	793,276	874,448	38,118	6,706	1,712,548
1923—Seven Months	726,960	884,971	37,185	7,000	1,656,116

Wood Pulp Imported by Japan, June, 1930

Japanese chemical wood pulp imports in June, 1930, were as follows (quantities in pounds): England, 421,868; U. S. A., 829,333; Germany, 1,118,000; Sweden, 158,800; Norway, 3,054,000; Canada, 7,055,333; Philippines, 800; Denmark, 182,400; a total of 12,820,534 lbs. There were no groundwood pulp imports during June.

The Paper and Pulp Industry in June, 1930

According to identical mill reports to the Statistical Department of the American Paper and Pulp Association from members and cooperating organizations, the daily average paper production in June showed a decrease of 1% under May, 1930, and a decrease of 8% under June, 1929. The daily average wood pulp production in June, registered a decrease of 4% under May, 1930, and a decrease of 6% under June, 1929.

REPORT OF PAPER OPERATIONS IN IDENTICAL MILLS FOR THE MONTH OF JUNE, 1930

GRADE	Production Tons	Shipments Tons	Stocks on Hand End of Month—Tons
Newsprint	108,398	106,883	29,507
Book (Uncoated)	72,648	71,762	62,899
Paperboard	178,543	182,659	58,977
Wrapping	43,969	45,227	45,148
Bag	13,707	14,559	5,251
Writing, etc.	27,083	23,991	51,273
Tissue	13,896	12,235	12,277
Hanging	4,811	3,910	5,172
Building	6,072	5,704	4,711
Other Grades	22,061	20,869	19,261
Total—All Grades	491,188	487,799	294,476

REPORT OF WOOD PULP OPERATIONS IN IDENTICAL MILLS FOR THE MONTH OF JUNE, 1930

GRADE	Production Tons	Used During Month—Tons	Shipped During Month—Tons	Stocks on Hand End of Month—Tons
Groundwood	90,348	81,100	1,718	103,541
Sulphite News Grade	34,104	31,532	3,112	7,841
Sulphite Bleached	25,048	21,903	2,043	4,600
Sulphite Easy Bleaching	2,954	2,886	249	947
Sulphite Mitscherlich	6,778	5,743	821	1,541
Kraft Pulp	28,269	24,463	4,047	7,937
Soda Pulp	20,990	13,230	7,904	3,444
Pulp—Other Grades	98	.....	107	12
Total—All Grades	208,589	180,857	20,001	129,863

IMPORTS OF PULP WOOD AND WOOD PULP INTO THE UNITED STATES BY COUNTRIES

Period From June 1 to 17, 1930

Compiled by the U. S. Department of Commerce Bureau of Foreign and Domestic Commerce

(Figures Subject to Revision.)

PULP WOOD

	Rough				Peeled				Rossed			
	Spruce		Other		Spruce		Other		Spruce		Other	
	Cords	Dollars	Cords	Dollars	Cords	Dollars	Cords	Dollars	Cords	Dollars	Cords	Dollars
COUNTRIES—												
Canada (and total)	20,966	234,227	763	6,300	48,149	584,964	11,364	122,095	405	4,756	.....	.....

Total Pulpwood Imports, period from June 1 to 17, 1930—81, 647 cords; $952,342.

WOOD PULP

	Mechanically Ground		Chemical Unbleached Sulphite		Chemical Bleached Sulphite		Chemical Unbleached Sulphate		Chemical Bleached Sulphate		All Other Wood Pulp	
	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars	Tons	Dollars
COUNTRIES—												
Austria	.....	.....	28	1,343	99	5,769	49	2,294	.....	.....	.....	.....
Czechoslovakia	.....	.....	622	35,159	1,077	78,415	.....	.....	.....	.....	.....	.....
Finland	1,174	30,993	6,831	340,035	189	10,332	2,598	114,874	124	7,945	.....	.....
Germany	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Norway	126	2,887	2,158	111,347	3,234	222,083	300	14,079	.....	.....	.....	.....
Sweden	423	12,045	17,742	928,853	4,099	274,348	11,797	584,180	1,225	60,144	.....	.....
Yugoslavia and Albania	.....	.....	499	22,597	.....	.....	.....	.....	.....	.....	.....	.....
United Kingdom	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5	601
Canada	8,702	231,514	11,463	512,296	7,860	593,559	3,420	201,107	234	21,542	255	17,769
Total	10,425	277,439	39,343	1,951,630	16,558	1,184,506	18,164	916,534	1,583	89,631	260	18,370

Total Pulp Imports, All Grades, period from June 1 to 17, 1930—86,333 tons; $4,438,110.

PULP

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PAPER

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PACIFIC COAST PAPER EXPORTS—MAY, 1930

	Newsprint		Printing		Writing		Greaseproof		Wrapping		Tissue	
	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars
From LOS ANGELES—												
To Mexico	309	20			129	53			1,236	812	4,427	357
To China									230	12	6,287	672
To Philippines									440	29	1,488	186
To Central America											1,305	213
To South America											342	32
To Australia											5,030	480
To Japan											815	200
To Orient											2,037	319
From OREGON—												
To South America	15,173	460	3,125	306								
To Philippines	357,444	12,557			80,159	3,800			57,185	3,161		
To China					117,099	6,269			1,220	88		
To Japan			8,160	668	11,623	566			21,716	1,199		
To Australia			20,636	1,089	13,139	645						
From SAN FRANCISCO—												
To Canada							90	19	134,952	5,060		
To Central America	21,999	769			154,555	9,430	3,418	497	118,516	6,117		
To Mexico	6,790	253			120	30			4	50		
To South America	13,265	895			20,718	1,113						
To Philippines	18,382	638					1,849	1,500	43,128	2,073		
To Orient					37	411			1,723	107		
To China					35	44						
To Japan									15	14		
To Colombia									5,373	282		
To Venezuela									4,165	246		
From WASHINGTON—												
To Canada	17,229	1,590	2,691	436	16,647	1,853	4,877	1,283	113,361	5,019	14,358	1,086
To China	287,264	17,235			783	239					6,261	526
To Philippines	33,224	1,848			27	5					14,340	1,218
To Orient					129	11						
To Australia	29,347	1,634			3,528	198					2,800	135
To Japan					446	185						
Pacific Coast Total	800,426	37,899	34,612	2,499	419,174	24,422	10,234	3,299	503,264	24,269	59,490	5,424

	Board		Building		Boxes & Cartons		Paper Bags		Converted Paper Products		Miscellaneous Paper & Prod.
	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Pounds	Dollars	Dollars
From LOS ANGELES—											
To Canada	2,065	123	1,050	20			338	48			526
To Mexico											981
To South America			22,981	605							57
To Australia			3,822	110							98
To Philippines					608	170					127
Japan											75
From OREGON—											
To United Kingdom					603	323					
To Philippines							47,069	3,672			10
To China	849,744	16,570									10
To Australia	35,950	815									
From SAN FRANCISCO—											
To Denmark					470	50					
To United Kingdom	5,873	1,842			8,250	250					
To Canada					44,648	1,760	2,508	246	79	16	474
To Mexico	532	47			80	18					142
To China	1,204	76	143,650	3,401	1,520	476					640
To Japan	3,588,614	71,772	57,000	1,459	17,296	690					
To Philippines			15,000	438	592,000	12,650	20,075	1,690			398
To Australia	128,105	3,538	74,810	2,431	12	2	398	253	140	22	1,124
To South America									80	26	
To Orient	47,035	1,507	62,500	1,656			4,003	202			2,916
To Central America							19,297	2,077			402
To Colombia							38,016	3,097			220
To Peru	819	96					5,549	363			2
To Venezuela							792	98			376
To Chile			37,000	99							
From WASHINGTON											
To Canada	37,797	1,462					64,911	4,300	446	215	9,960
To China									504	109	289
To Orient											4
Japan											250
Pacific Coast Total	4,697,738	97,848	417,813	10,219	665,487	16,389	203,156	16,076	1,249	388	19,081

Total All Paper Exports for month of May, 1930—$257,812.
Total All Paper Exports for month of April, 1930—$269,256.
Total All Paper Exports for Five Months, 1930—$1,588,819.

The following sulphite wood pulp was shipped during the month of May, 1930; from Washington to France 577 tons, $22,000; to Italy 25 tons, $1,584; to United Kingdom 1,202 tons, $49,072; to Bolovia 616 tons, $27,654; to China 114 tons, $5,633. San Francisco shipped 1 ton, $33 of other wood pulp to Canada during the month of May, 1930.

CLASSIFICATIONS—For convenience of presentation, some classifications have been combined, as follows: "printing," includes book (not coated), cover and surface coated paper; "greaseproof" includes waterproof; "tissues" includes crepe, tissue, paper towels, napkins and toilet; "board" includes boxboard, bristol, bristolboard and other paper board and strawboard; "building" includes sheathing, and other building paper; "writing" includes fancy papeteries and other writing; "converted paper products" includes envelopes, cash register rolls, index file and other office forms; "miscellaneous" includes blotters, paper hangings, vulcanized fibre sheets, strips, rods and tubes, manufactures of vulcanized fibre and other paper products. COUNTRIES—Under the classification "Central America" are included all of the Central American countries and Cuba. "South America" includes only the following South American countries: Ecuador, Paraguay, Bolivia, Uraguay, and the Guianas; other South American countries are classified separately. "Orient" includes all the Asiatic countries with the exception of China and Japan, which are separately classified. New Zealand is included under "Australia."

Denies Hoquiam Pulp Mill Rumor

Reports that Portland pulp and paper men and Eastern capitalists plan construction of a 100-ton pulp plant at Hoquiam, Washington, were emphatically denied by B. T. McBain, Portland, a member of a party of pulp and paper men visiting Hoquiam last month.

"I am at a loss to understand how this story started," declared Mr. McBain. "Jack Anderson, president of the Pulp & Paper Trading Company, New York; George Teren, manager of the American Writing Paper Company, Holyoke, Massachusetts; A. B. Galloway, sales manager for the Oregon Pulp & Paper Company, Salem; and myself visited mills at Newberg, Oregon, Vancouver, Longview, Hoquiam, Shelton, Everett and Tacoma, Washington, late in August.

"Our trip was merely for the purpose of inspection. Mr. Anderson and Mr. Teren were in Portland last month to attend the wedding of Miss Dorothy Leadbetter and Mr. Nils Teren, following which they decided to visit some of the Northwest mills. They visited Vancouver and Victoria, B. C., before returning East by way of Montreal early this month. A dispatch in a local newspaper stated that E. E. Hoitola accompanied us. There was no such man in our crowd."

Mr. McBain was equally insistent that no one in the party had approached Hoquiam city officials on the matter of constructing a pulp mill. He also asserted that none of the visitors had been interviewed while in that city.

Nunn Transferred to Camas

Chemist Edward Nunn, who joined the Crown Willamette Paper Company recently from B. C. Pulp & Paper Company, has been transferred from West Linn mill to the Camas mill of the first named company.

Sales Manager

Woodpulp or Paper, 20 years' experience in manufacturing and selling; thoroughly familiar with organization, promotion, credits, shipping, etc.; now employed; seeking connection with first-class manufacturer; best of references; replies treated in confidence.

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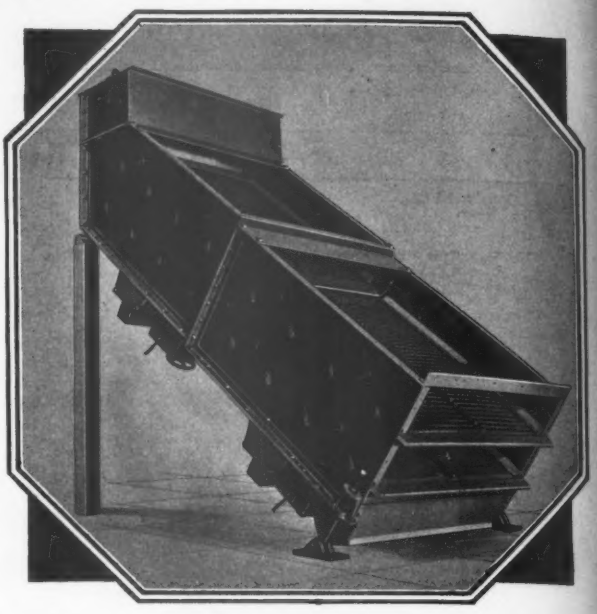

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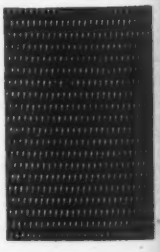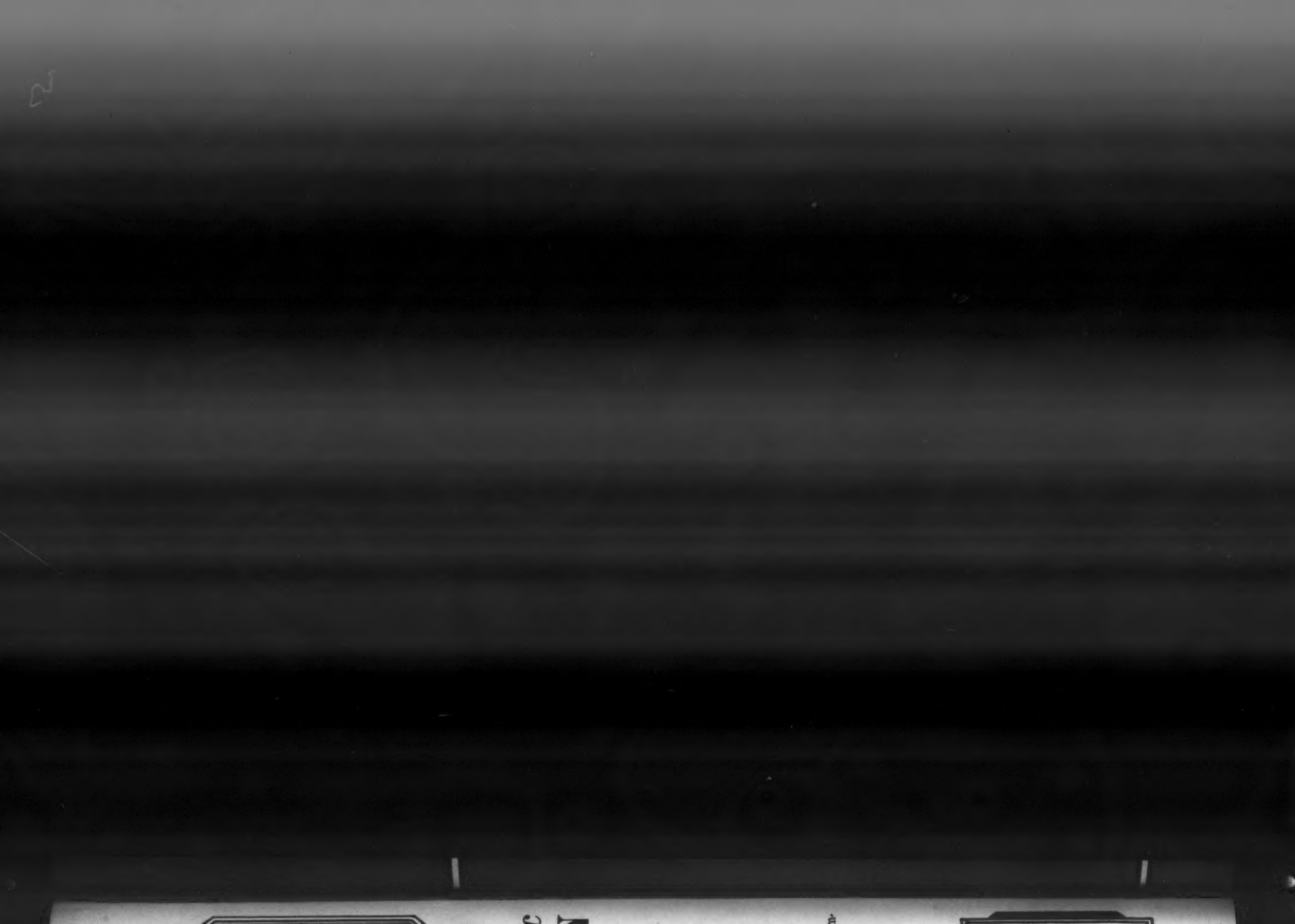
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